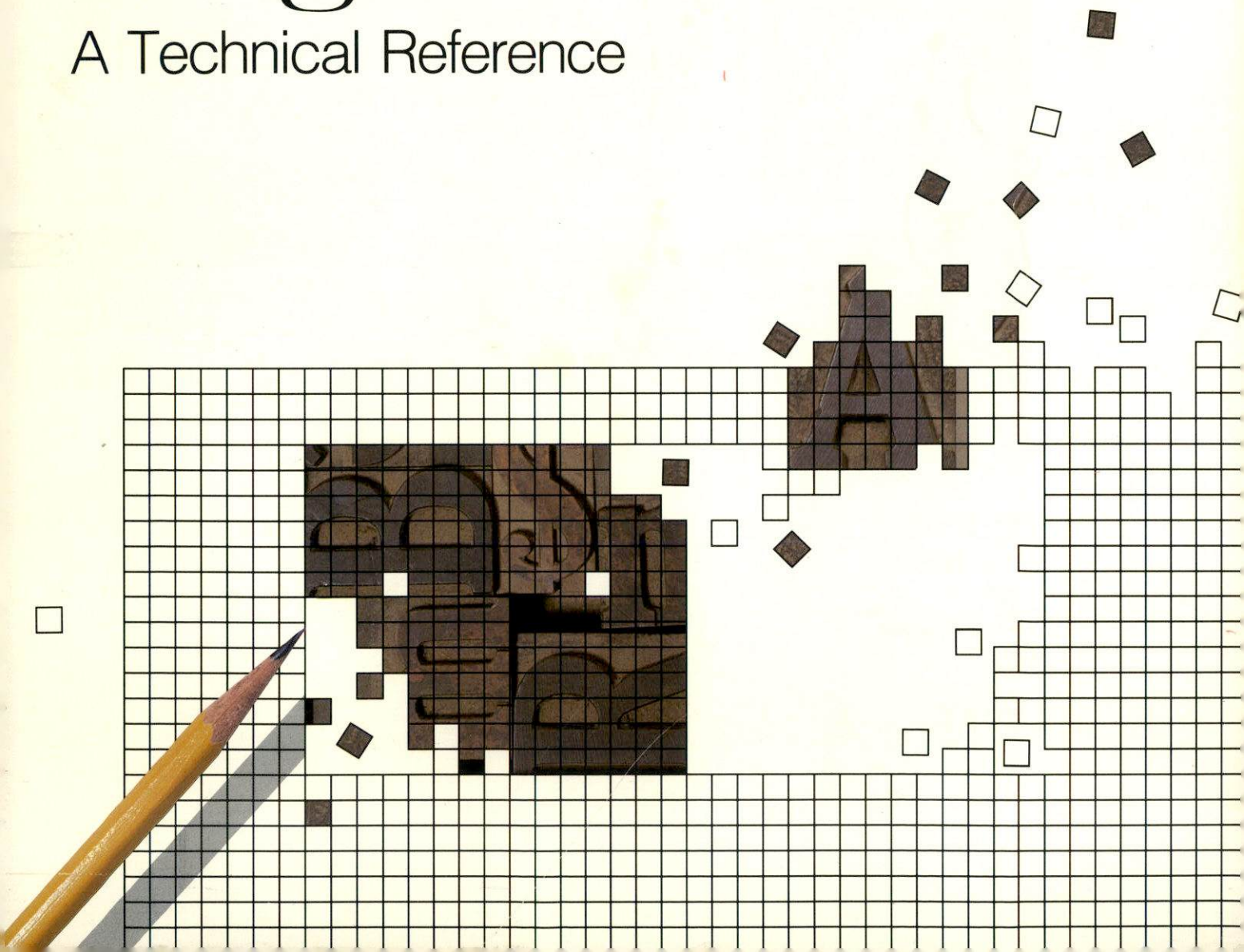
WordPerfect® Printer Definition Program

A Technical Reference



WordPerfect® Printer Definition Program

A Technical Reference

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Introduction

The WordPerfect Printer Definition Program manual is designed to help you understand how to edit and create the printer files WordPerfect needs to be able to communicate with your printer.

Manual Sections

Each section in the manual is written for a special purpose, and with a particular audience in mind. By understanding the purpose of each section, you can more easily focus on those parts of the manual that address your needs.

Overview

The overview is a brief introduction to the purpose and structure of the Printer program, with instructions for starting, exiting, and working with printer files, a list of feature keystrokes, and charts of the program's menu levels.

Applications

Applications provides step-by-step instructions for accomplishing tasks such as changing the font used for an attribute (e.g., Extra Large), adding a sheet feeder, or creating a font definition. Suggestions are provided along the way (many from the PC Printer group) to help you understand what is needed, make wise decisions, and then test the changes.

Reference

Reference provides detailed information about each item in the Printer program menus. Five major sections include information about printer definitions, sheet feeder definitions, character maps, proportional spacing tables, and typeface definitions. Topics in each section are organized in the order in which they appear in the menus.

Appendix

Several appendices provide specialized information about items such as the WordPerfect Printer Description Language (WPDL), error messages, and features accessed from the keyboard.

Glossary

Brief descriptions are provided of technical words used in the manual that may not be familiar to you. The glossary covers terminology from areas such as programming, printer languages, and publishing.

Index

A comprehensive index provides quick access to specific topics discussed in one or more areas of the manual.

Manual Conventions

The WordPerfect Printer Definition Program manual has been written in the same style and format as the manuals in your WordPerfect 5.0 package. Function keys are bolded with the appropriate keystrokes provided in parentheses (e.g., **Character Maps** (F4)). Terms such as "Enter" and "Type" are used to describe entering information.

Printer Definitions

If your printer is not listed in an ALL file when installing WordPerfect, you can write to the following address to request a printer definition for your printer.

Printer Diskette
81 N. State Street
Orem, Utah 84057

This information is included in the Installation section of the WordPerfect 5.0 manual.

Another alternative is to call WordPerfect's Information Services (801) 255-5000 and find out if a printer definition for your printer has been recently completed, or is currently being created. While you can place a request for a printer definition, the right to decline the request is based on the availability of the printer and the number of requests received by WordPerfect Corporation.

You may also want to check with Information Services for new font definitions or kerning tables that may be available.

Comments and Suggestions

We are constantly improving our software and documentation. If there are suggestions you would like to make concerning either the software or documentation, send comments to:

WordPerfect Corporation
1555 N. Technology Way
Orem, Utah 84057

Please include the product name (WordPerfect Printer Definition Program), the software version number (see Help Screen) and date (date of PTR.EXE file), the manual version number and date (see back of title page), and the name of the computer on which you are running the WordPerfect software.

Printer Program

Communication between your printer and WordPerfect is a vital part of processing documents. The better the communication, the less time you spend correcting problems, and the more time you have available for enjoying WordPerfect's remarkable features.

The information WordPerfect needs to communicate with your printer is stored in a PRS (**P**rinter **R**esource) file created when you select a printer while installing WordPerfect. The information is copied from a much larger file (an ALL file) that contains all the information WordPerfect Corporation currently provides for your printer (as well as several other printers).

Each ALL file comes on a separate printer diskette in your WordPerfect package, and is numbered to reflect the number of the diskette on which it is stored. For example, the WPRINT1.ALL file is stored on the Printer 1 diskette.

The WordPerfect Printer Definition program (referred to as the Printer program in the manual) is the tool used by WordPerfect Corporation to produce the ALL files. In order to give you complete flexibility in communicating with your printer, the Printer program is sent as part of the WordPerfect package, allowing you to edit or add to the information in a PRS or ALL file.

While the Printer program identifies a PRS or ALL file by the codes in the file (not by the filename), a .PRS or .ALL extension needs to be part of the filename so WordPerfect can recognize it as a printer file.

A Printer program template is provided for the IBM standard and enhanced keyboards at the back of the Printer Definition manual. You may want to cut out the template, and then place it on your keyboard before continuing.

Starting the Printer Program

The PTR Program diskette contains the Printer program (PTR.EXE) and the on-line help screens for the program (PTR.HLP). While the PTR.EXE is necessary for running the Printer program, the PTR.HLP file is only necessary if you plan on using the Help feature (F3) while in the Printer program.

When editing a PRS or ALL file, it is a good idea to make a working copy of the file that can be edited and tested before replacing the original file with the edited version.

Two Disk Drives

If you are running WordPerfect from two disk drives, you can start the Printer program by following these steps.

1 Start DOS.

2 Insert the PTR Program diskette in drive A, and the diskette with your printer file into drive B.

If you are editing a PRS file, make a copy of the PRS file from your WordPerfect 1 diskette and then place the copied file in drive B. If you are editing an ALL file, make a copy of the Printer diskette (e.g., Printer 1, Printer 2) that contains the ALL file for your printer, and then place the copied diskette into drive B.

Because a List Files feature is currently not included in the Printer program, you will need to know the name of the printer file *before* starting the Printer program.

3 Type **b:** at the DOS prompt, and then press **Enter** to change the default drive to B.

4 Enter **a:ptr** to start the Printer program.

Once in the Printer program, you can press **Retrieve** (Shift-F10), and then enter the name of the PRS or ALL file (e.g., hplaseii.prs, wprint3.all).

You can also type the name of the printer file when starting the Printer program to have the file automatically retrieved into the program (e.g., ptr hplaseii.prs)

If a "Convert to new format? (Y/N) N" message appears when you are retrieving a PRS or ALL file, then the file was created under an older version of the Printer program than the one currently on your screen. In most cases, you will want to type **y** to convert the file. However, once the file is converted and then saved out, you may not be able to retrieve it again into the older version of the Printer program.

Hard Disk

Before starting the Printer program, you should copy the PRS or ALL file you want to edit to a diskette, and then make changes to and test the copied file *before* replacing the original file with the edited version.

If you have enough room on your hard disk, it is recommended that you copy the Printer program (and the help files) into your WordPerfect 5.0 directory before starting the program. Both the program and help files are located on the PTR Program diskette.

After copying the Printer program to your WordPerfect 5.0 directory,

1. Start DOS.
2. Change to the WordPerfect 5.0 directory (e.g., cd \wp50).
3. Type **ptr** at the DOS prompt to start the Printer program.

Once in the printer program, insert the diskette containing the copy of the PRS or ALL file into drive A, press **Retrieve** (Shift-F10), and then enter the name of the file (e.g., a:hplaseii.prs, a:wprint3.all).

You can also type the name of the printer file when starting the Printer program to have the file automatically retrieved into the program (e.g., ptr a:hplaseii.prs)

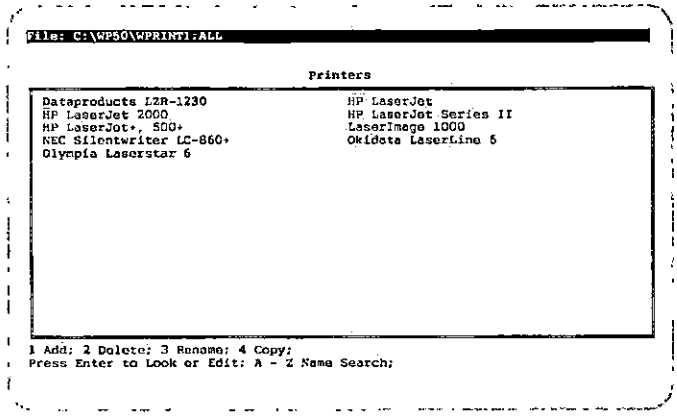
If a "Convert to new format? (Y/N) N" message appears when you are retrieving a PRS or ALL file, then the file was created under an older version of the Printer program than the one currently on your screen. In most cases, you will want to type **y** to convert the file. However, once the file is converted and then saved out, you may not be able to retrieve it again into the older version of the Printer program.

Moving Through Menus

As soon as you start the Printer program and retrieve the printer file, a list of all the printer definitions in the file is displayed. If you have retrieved a PRS file, then only one printer name appears in the list. If you have retrieved an ALL file, then two or more names appear in the list.

For example, make a copy of the Printer 1 diskette and then place the copied diskette into drive A (hard disks) or drive B (two diskette drives).

4 Press **Retrieve** (Shift-F10) and enter **a:wprint1.all** for hard disks or **wprint1.all** for two diskette drives to retrieve the copied ALL file.

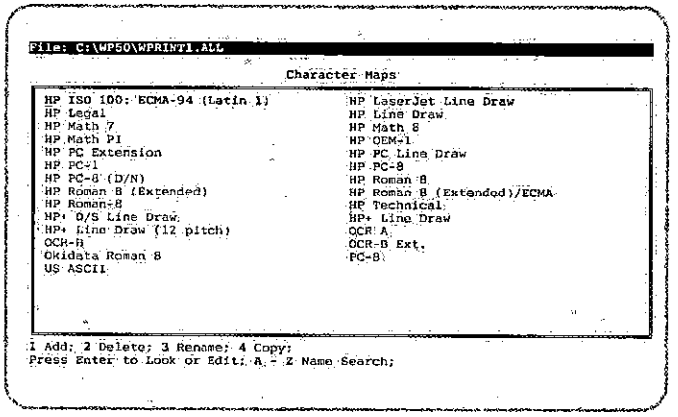


While the printer definitions are always displayed first when you retrieve a printer file, the printer file also contains a list of sheet feeder definitions (if any of the printers use a sheet feeder), character maps, proportional spacing tables (if any fonts are proportionally-spaced), and typeface definitions for the fonts.

You can switch to the other lists by pressing the following keys.

Sheet Feeder Definitions (Shift-F8)
Character Maps (F4)
Proportional Spacing Tables (F6)
Typeface Definitions (Shift-F6)
Printer Definitions (F8)

5 Press **Character Maps** (F4) to display the list of character maps in the file.

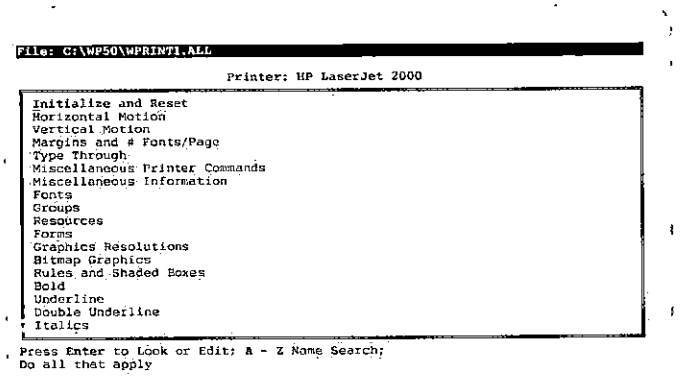


The list of character maps includes *all* the character maps used by the printers in the file. The menu at the bottom of the list lets you add, delete, rename, or even copy character maps.

However, to assign a character map to a font defined for a printer, you need to return to the list of printer definitions, and then move down through the printer definition menus for that printer.

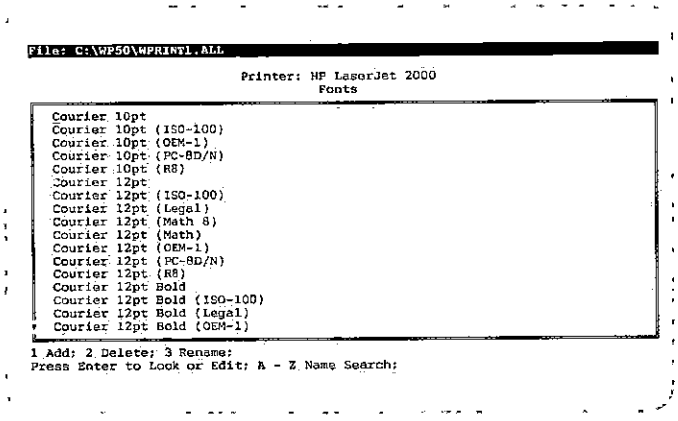
6 Press **Printer Definitions** (F8) to return to the list of printers.

7 Move the cursor to the HP LaserJet 2000 printer name by using the arrow keys and then press **Enter**.



A menu is displayed that lists the items of information stored in the printer file for the HP LaserJet 2000 printer.

8 Type **f** to move the cursor to the Fonts item, press **Enter** to end the Name Search feature, and then press **Enter** again to select the item (it may take a moment to sort the fonts).



A list of all the font definitions created for the printer is displayed on the screen. By selecting a font, another menu is displayed that lists items of information stored in the font definition.

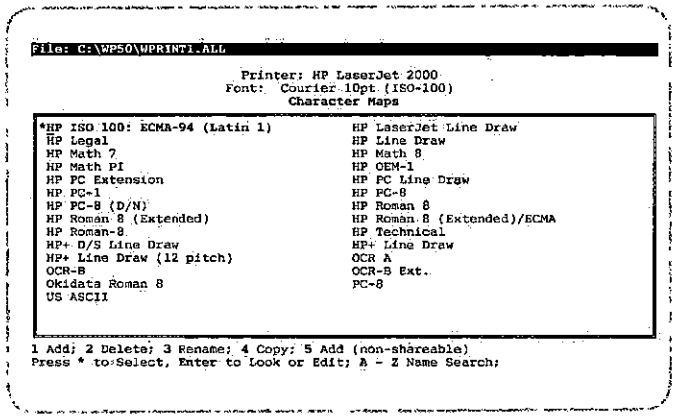
9 Select the Courier 10pt (ISO-100) font definition by placing the cursor on the font name and then pressing **Enter**.

Notice that a Character Map item is displayed near the top of the list. By selecting this item, a list of all the character maps is displayed that lets you mark a character map to be used by WordPerfect for the Courier 10pt (ISO-100) font.

10 Select the Character Map item by placing the cursor on the item (you can use the arrow keys or Name Search) and then pressing **Enter**.

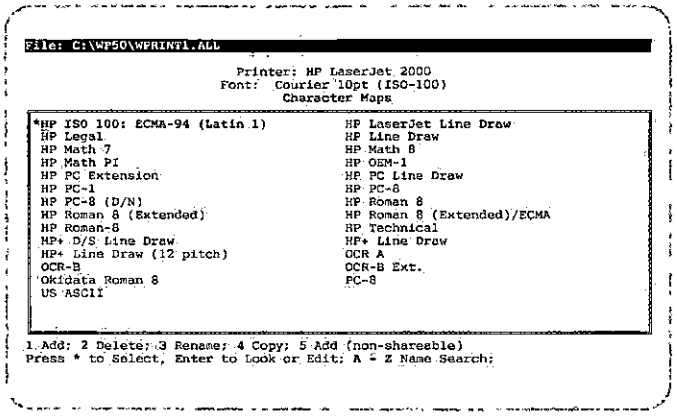
The list of character maps displayed here is the same list displayed when you pressed **Character Maps** (F4) in the first step. However, the main purpose of the list at this level is to mark a character map for the font.

Notice that the currently assigned character map is marked with an asterisk (*). By typing an asterisk next to any character map in the list, the map is assigned to the font.



The options for adding, deleting, renaming, and copying character maps are included at the bottom of the list for your convenience. If you want to edit the Character Map list, then the editing can be done at this point (on the fly), instead of returning to the Character Map list at the top level of the Printer program.

As you move down through the menu levels, a list of the menus through which you have passed is displayed at the top of the screen.



This menu list gives you a good idea of your current location in the Printer program, and how many levels you need to exit to return to the original list of printers. The Exit key can be used to exit a level at a time back to the top level of the program.

11 Press **Exit** (F7) four times to return to the list of Printer Definitions.

Once you are at the top level of the Printer program, you can then press any of the five keystrokes listed at the beginning of this exercise (F8, Shift-F8, F6, Shift-F6, F4) to switch to another list of definitions, maps, or tables.

The menus have been designed as lists of items to make it easier to add new items of information that may be needed by certain printers currently and in the future. The items on some main menus (such as those for a printer or font definition) are listed in order of importance, while other lists (such as lists of printer definitions or sheet feeder definitions) are sorted alphabetically.

In either case, the Name Search feature lets you quickly find an item in the list by simply typing the name of the item until the cursor rests on the name, and then pressing **Enter** to end the name search.

If sorting takes a long time when you select a menu item (e.g., Fonts), you can turn off sorting by pressing ***Setup*** *(Shift-F1), and then selecting Sorting Off (2).*

While each list has its own menu structure that leads you to information stored in the printer file, the structure for the printer definitions (F8) is definitely the largest as it contains the majority of information.

In order to help you see the menu structures at a glance, a series of menu charts has been provided at the end of *Overview*. You may want to refer to these charts from time to time for a general idea of where to find and edit information in the Printer program.

Editing Printer Information

Now that you have been introduced to the idea of marking an item in a list to provide information to WordPerfect in the printer file, you should also become familiar with menus where information is entered from the keyboard.

Menus that provide places for entering characters usually need one of three types of information—a command string, a numeric value, or a "yes" or "no" answer. The information you enter is called an expression.

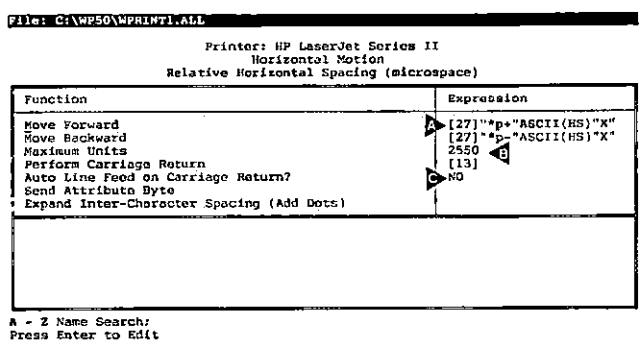
12 Select the HP LaserJet Series II printer from the printer definition list by placing the cursor on the name and then pressing **Enter**.

13 Type **h** and press **Enter** to place the cursor on the Horizontal Motion item in the menu, and then press **Enter**.

14 Type **r** and press **Enter** to place the cursor on the Relative Horizontal Spacing (microspacing) item, and then press **Enter**.

A menu is displayed that includes information WordPerfect needs to print horizontally with the HP LaserJet Series II printer.

A COMMAND STRING
B NUMERIC VALUE
C YES/NO ANSWER



The left column in the menu lists the type of information needed (functions), while the right column lists the expressions that have been entered. While it is important to enter the appropriate information for a printer, only those functions that apply to the printer need to be filled in.

All information is entered using the WordPerfect Printer Description Language (WPDL). While some examples follow below, you should turn to *WordPerfect Printer Description Language (WPDL)* in Appendix at the end of the manual to become familiar with all the options available.

If an expression is left blank in a menu, then a YES/NO answer is always assumed to be NO, and any numerical values are assumed to be zero (0).

Command Strings

A command string is filled in for the Move Forward, Move Backward, and Perform Carriage Return functions. A command string can include such items as a decimal value ([13]), characters in double quotation marks ("*p+"), and functions (ASCII) or variables (HS). Also available are arithmetic (e.g., +,*,<,>) and function (e.g., IF,THEN,ELSE) operators, and hexadecimal, binary, and octal values.

Decimal values and characters are sent directly to the printer without any translation by WordPerfect. Functions, variables, and operators help WordPerfect calculate a value that needs to be sent to the printer.

For example, in the expression [27]"*p-"ASCII(HS)"X", the [27] is sent directly to the printer signal the printer that a command is coming. The "*p-" is sent directly to the printer, followed by the ASCII value of the current horizontal spacing and an uppercase X to end the command.

The WPDL built-in variables are always displayed in uppercase letters (even though they may be entered in lowercase letters) to help you distinguish them from those created for a printer definition (see *Variables* in the Printer section of *Reference* for details).

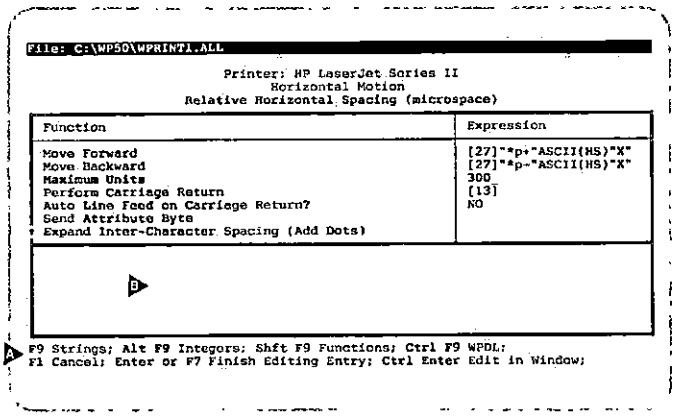
Numeric Values

Often a number is needed by WordPerfect to help calculate how to perform a printing task. For example, the number entered for Maximum Units is the maximum number of microspace units used by the printer for a single relative horizontal movement. This number is critical when WordPerfect calculates justification, kerning, or spacing of text.

15 Place the cursor on the Maximum Units item, press **Right Arrow** (→), and then type **300**.

As soon as you start editing, a menu of available features is displayed at the bottom of the screen.

A FEATURE MENU
B EDIT WINDOW



By pressing a listed key, you can move the expression into the editing window, display a list of variables, save the expression you are editing, or even restore the original expression by pressing **Cancel**.

16 Press **Cancel** (F1) to restore the 2550 maximum units value.

However, if you press **Enter** or **Exit** (F7) *before* pressing **Cancel**, then the expression is entered for the function, and you will need to retype the original information. Pressing **Cancel** does *not* restore all the edited expressions in a menu or return you to the previous level in the menu structure.

As you move from menu to menu in the Printer program, always check the bottom of the screen for options or keystrokes available for editing in the menu.

For a complete list of all feature keystrokes available in the Printer program, turn to the Feature Summary appendix at the end of the manual.

YES/NO Answers

Sometimes a simple "yes" or "no" is needed to answer a question so WordPerfect knows the current status of your printer. For example, a "yes" answer to "Auto Line Feed on Carriage Return?" lets WordPerfect know that the printer automatically performs a line feed with each carriage return.

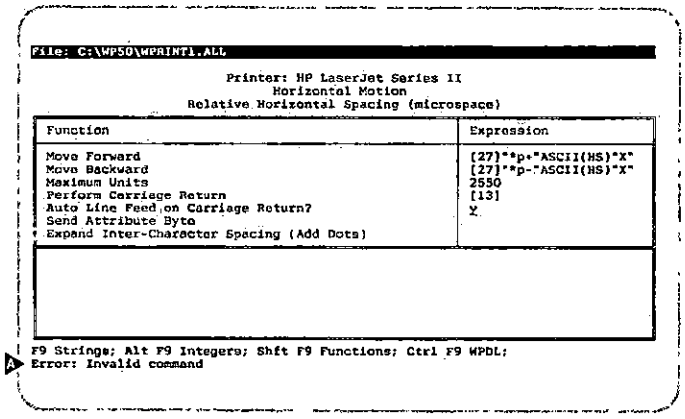
You should type the complete word **yes** or **no** for the expression, or an error message is displayed.

17 Press **Down Arrow** (↓) twice to place the cursor on the "no" answer for "Auto Line Feed on Carriage Return?".

18 Type **y** to begin entering a "yes" and then press **Enter**.

Notice the error message at the bottom of the menu indicating that the "y" is an invalid command.

⚠ ERROR MESSAGE



As you enter expressions in the Printer program, an error message may be displayed, indicating an incorrect expression, a missing parenthesis, a missing quotation mark, etc. These messages help you to correctly use the WPDL when entering information.

19 Press **Delete** (Del) to erase the "y," and then type **no** and press **Enter**.

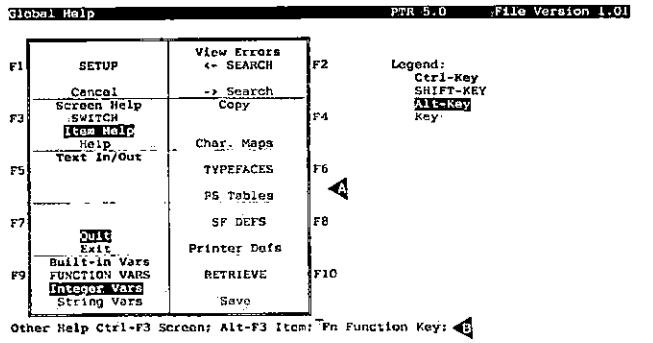
20 Press **Exit** (F7) three times to return to the list of printer definitions in the ALL file.

Displaying the Help Screens

You can press **Help** (F3) from any place in the Printer program to display a keyboard template and information about using the Help feature.

If you have not copied the PTR.HLP file to the Printer program directory, then only the keyboard template screen is available when you press the Help key.

21 Press **Help** (F3) to display the keyboard template.

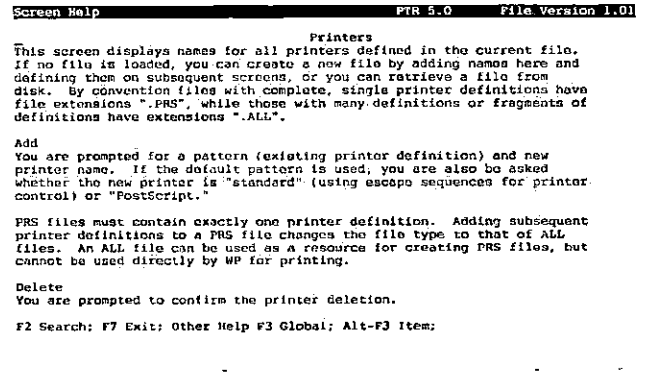


A KEYBOARD TEMPLATE

B HELP INFORMATION

By pressing a function key listed in the template, you can display a screen of information about that feature. If you press **Screen Help** (Ctrl-F3), information is displayed about the current menu.

22 Press **Screen Help** (Ctrl-F3) to display information about the list of printer definitions.


Screen Help
PTR 5.0
File Version 1.01
Printers
This screen displays names for all printers defined in the current file. If no file is loaded, you can create a new file by adding names here and defining them on subsequent screens, or you can retrieve a file from disk. By convention files with complete, single printer definitions have file extensions ".PRS", while those with many definitions or fragments of definitions have extensions ".ALL".
Add
You are prompted for a pattern (existing printer definition) and new printer name. If the default pattern is used, you are also be asked whether the new printer is "Standard" (using escape sequences for printer control) or "PostScript."
PRS files must contain exactly one printer definition. Adding subsequent printer definitions to a PRS file changes the file type to that of ALL files. An ALL file can be used as a resource for creating PRS files, but cannot be used directly by WP for printing.
Delete
You are prompted to confirm the printer deletion.
F2 Search; F7 Exit; Other Help F3 Global; Alt-F3 Item;

The Help screens are designed to allow information to be scrolled on to the screen. For example, by pressing **Down Arrow**, you can display all the information available about the list of printer definitions.

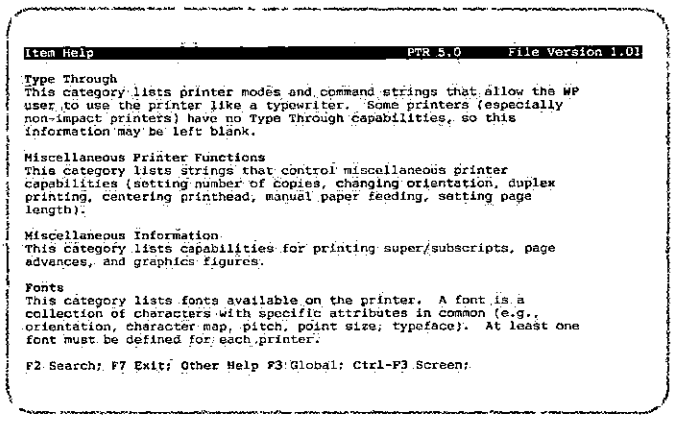
23 Press **Down Arrow** (↓) until the rest of the information about the printer definition list (Rename and Copy) is displayed.

24 Press **Exit** (F7) to return to the printer definition list.

Another help feature lets you quickly display information for an item in a menu.

25 Press **Enter** to display the Printer menu for the HP LaserJet Series II printer, and then place the cursor on the Type Through item.

26 Press **Item Help** (Alt-F3) to display information about the Type Through item in the Printer menu.


Item Help PTR 5.0 File Version 1.01
Type Through
This category lists printer modes and command strings that allow the WP user to use the printer like a typewriter. Some printers (especially non-impact printers) have no Type Through capabilities, so this information may be left blank.
Miscellaneous Printer Functions
This category lists strings that control miscellaneous printer capabilities (setting number of copies, changing orientation, duplex printing, centering printhead, manual paper feeding, setting page length).
Miscellaneous Information
This category lists capabilities for printing super/subscripts, page advances, and graphics figures.
Fonts
This category lists fonts available on the printer. A font is a collection of characters with specific attributes in common (e.g., orientation, character map, pitch, point size, typeface). At least one font must be defined for each printer.
F2 Search; F7 Exit; Other Help F3 Global; Ctrl-F3 Screen;

Notice that you are taken directly to the Type Through heading in the information for the Printer menu. By pressing **Screen Help**, you can scroll to the beginning of the information.

27 Press **Screen Help** (Ctrl-F3) to scroll to the beginning of the Printer menu information.

28 Press **Item Help** (Alt-F3) to return to the Type Through heading.

29 Press **Exit** (F7) to return to the Printer menu, and then press **Exit** again to return to the printer definition list.

By becoming familiar with all the help features available, you can quickly display the exact information you need about any item in the Printer program.

Exiting the Printer Program

Once you return to one of the five lists of definitions (printers, sheet feeders, character maps, proportional spacing tables, or typefaces), you can press **Exit** (F7) to save any editing changes, and then clear the Printer program to retrieve another printer file, or exit to DOS.

30 Press **Exit** (F7), and then type **n** to indicate that you do not want to save the ALL file.

31 Type **y** to exit the Printer program.

Exiting the Printer program provides the same options that are available when exiting WordPerfect (i.e., save the file, clear the screen, etc.).

Consistency Check

When saving a PRS file, a consistency check is done as soon as you type "y" to indicate that you want to save the file. Any conflicting situations in the way the information has been entered in the file are noted and saved in a special PRS.ERR file. You can then continue saving the document.

If a message is displayed indicating that information has been saved to the PRS.ERR file, you may want to stay in the Printer program and then press **View Errors** (Ctrl-F2) to read the contents of the PRS.ERR file. The file can also be retrieved into WordPerfect as a text file for displaying, printing, etc., by using **Text In/Out** (Ctrl-F5).

If you want to save the information in the PRS.ERR file, you should rename the file or print it from WordPerfect, as each time a consistency check is done, the original contents of the PRS.ERR file are automatically replaced with the new information.

Exiting from Any Menu Level

While in a submenu, you can exit the Printer program without returning to the top menu level by pressing **Quit** (Alt-F7). If you want to save the information you have entered, and continue editing, press **Save** (F10).

Printer Files

When you first install WordPerfect, you are asked to select your printer so WordPerfect knows which printer you are using and how to communicate with that printer.

After selecting the printer, a customized file is created that contains information tailored to meet the needs of your particular printer. The customized file is created from a larger resource file that contains all the information WordPerfect provides for the printer model you own.

The customized file always ends with a .PRS extension (e.g., HPLASEII.PRS) and is referred to as a PRS (**P**rinter **R**esource) file. The larger resource file always ends with a .ALL extension and is included on one of the Printer diskettes in your WordPerfect 5.0 package (e.g., WPRINT1.ALL on the Printer 1 diskette).

Displaying the Printers in an ALL File

The ALL file can contain complete information for as many as 50 or more printers. This information includes a printer definition for each printer, sheet feeder definitions for all the printers, and proportional spacing tables, character maps, and typeface definitions for all the fonts defined for each printer.

A list of all the printers defined in an ALL file can be displayed by using Additional Printers on the Select Printer menu in WordPerfect.

1. Start WordPerfect.

2. Press **Print** (Shift-F7), select Select Printer (s), and then select Additional Printers (2) from the menu at the bottom of the screen.

If you already have one or more ALL files in your WordPerfect directory (or the directory where your printer files are located), then a list of all the printers defined in the ALL files is displayed. If you have no ALL files in the directory, or if you are using two diskette drives, then a message is displayed telling you to use Other Disk (2) at the bottom of the screen to display a list of printers.

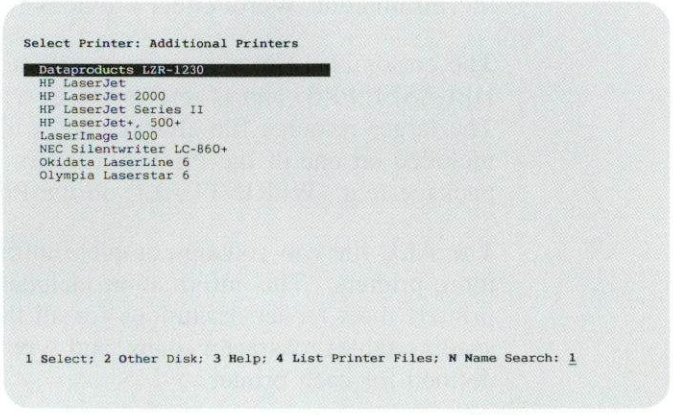
3. Insert the Printer 1 diskette from your WordPerfect package into drive A (hard disks) or drive B (two diskette drives).

If you have completed the Printer Program section of Applications, then insert the copied Printer 1 diskette into drive A (hard disks) or drive B (two diskette drives).

4 Select Other Disk (2), and then enter **a:** (hard disks) or **b:** (two diskette drives) to display a list of printers.

Creating a PRS File

The printers defined in the WPRINT1.ALL file on the Printer 1 diskette are displayed on the screen.


Select Printer: Additional Printers
Dataproducts LZR-1230
HP LaserJet
HP LaserJet 2000
HP LaserJet Series II
HP LaserJet+, 500+
LaserImage 1000
NEC Silentwriter LC-860+
Okidata LaserLine 6
Olympia Laserstar 6
1 Select; 2 Other Disk; 3 Help; 4 List Printer Files; N Name Search: 1

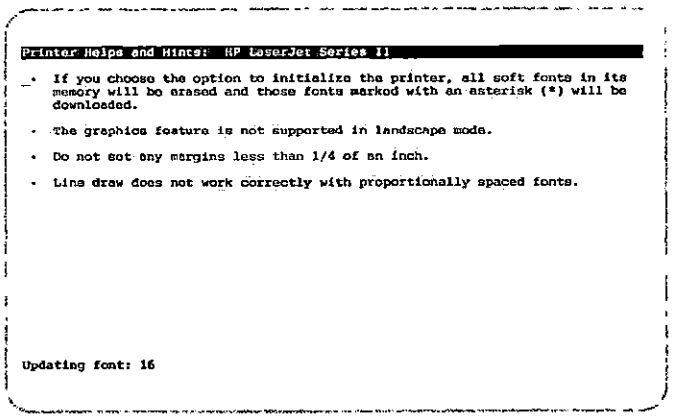
5 Place the cursor on the HP LaserJet Series II printer name, and then press **Enter** to select the printer.

A message is displayed with the name of the PRS file to be created from the ALL file.

6 Type **new.prs** and then press **Enter**.

As soon as you press **Enter**, a help screen of information about the printer is displayed, and WordPerfect begins the process of creating a PRS file from the ALL file.

Information about the printer is copied into the PRS file. This information includes the fonts that are permanently installed (built-in) to the printer. Notice that a message is displayed indicating that the fonts are being updated.


Printer Helps and Hints: HP LaserJet Series II
If you choose the option to initialize the printer, all soft fonts in its memory will be erased and those fonts marked with an asterisk (*) will be downloaded.
The graphics feature is not supported in landscape mode.
Do not set any margins less than 1/4 of an inch.
Line draw does not work correctly with proportionally spaced fonts.
Updating font: 16

The updating message lets you know that WordPerfect is selecting automatic font changes (AFCs) and substitute fonts for each font copied into the PRS file. The AFCs and substitute fonts are used by WordPerfect to switch to other fonts for attributes (e.g., Extra Large Print, Small Print, Italics) and to provide characters from other fonts that are not available in the current font.

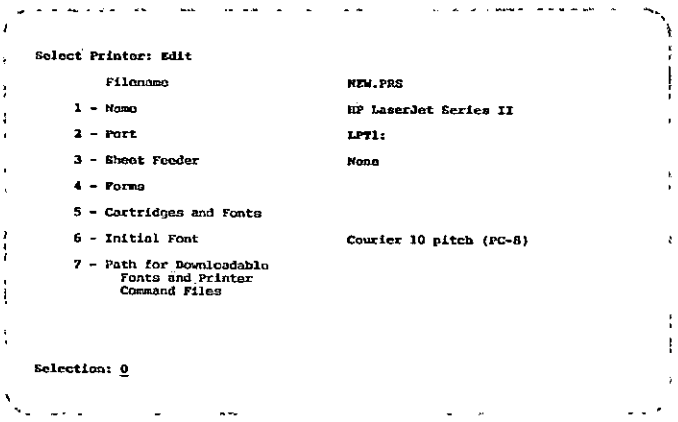
Turn to Applications or Reference for details on AFCs and substitute fonts.

Once the updating is completed, a PRS file for the HP LaserJet Series II printer is stored in your WordPerfect directory (hard disks) or on your WordPerfect 2 diskette (two diskette drives).

Changing the Printer Information

At this point, you may want to take a moment and read the information about the printer displayed on the screen. Valuable advice is provided that can save you time and frustration when using your printer with WordPerfect.

7 After reading the help screen, press Exit (F7) to display an Edit menu for the HP LaserJet Series II printer.


Select Printer: Edit
Filename NEW.PRS
1 - Name HP LaserJet Series II
2 - Port LPT1:
3 - Sheet Feeder None
4 - Forms
5 - Cartridges and Fonts
6 - Initial Font Courier 10 pitch (PC-8)
7 - Path for Downloadable Fonts and Printer Command Files
Selection: 0

The information you edit and select from this menu lets WordPerfect create and store customized information about the printer. However, not all the information is stored in the PRS file.

Printer Name/Port/Downloadable Fonts

The printer name (displayed in the Select Printer menu), port, and path for downloadable fonts are stored in the WP{WP}.SET file, along with all the other default settings you have changed for your copy of WordPerfect.

8 Select Name (1), and then enter **New Printer** for the name of the printer to be displayed in the Select Printer list.

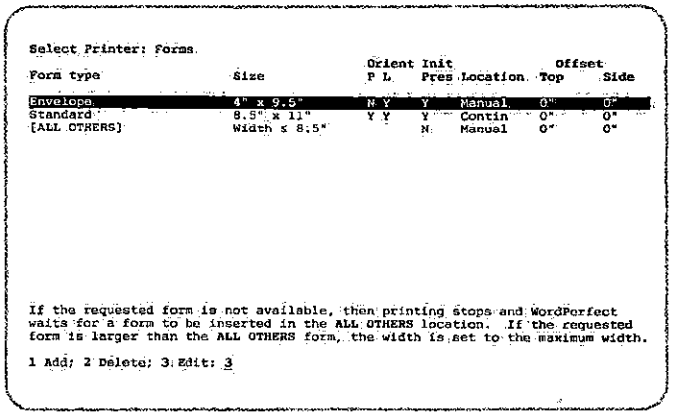
By changing the name in the Edit menu, you are simply changing the name stored in the WP{WP}.SET file. The name "HP LaserJet Series II" remains unchanged in the PRS and ALL files.

Because WordPerfect identifies the ALL file from which the PRS file came by the name stored in the PRS file, using the Printer program to change the name in the list of printer definitions prevents WordPerfect from finding the ALL file to display a list of sheet feeders, cartridges and fonts, etc., when using the Edit menu.

Forms

Selecting Forms displays a table of forms located in the PRS file.

9 Select Forms (4) to display the forms defined in the PRS file.


Select Printer: Forms
Form type
Size
Orient P L
Init Pres
Location
Offset Top
Offset Side
Envelope 4" x 9.5" N Y Y Manual 0" 0"
Standard 8.5" x 11" Y Y Y Contin 0" 0"
[ALL OTHERS] Width ≤ 8.5" N Manual 0" 0"
If the requested form is not available, then printing stops and WordPerfect waits for a form to be inserted in the ALL OTHERS location. If the requested form is larger than the ALL OTHERS form, the width is set to the maximum width.
1 Add; 2 Delete; 3 Edit: 3

While these forms were copied from the ALL file, any editing changes you make to the forms while in WordPerfect (add, delete, rename) are saved to the PRS file.

10 Press **Exit** (F7) to return to the Edit menu.

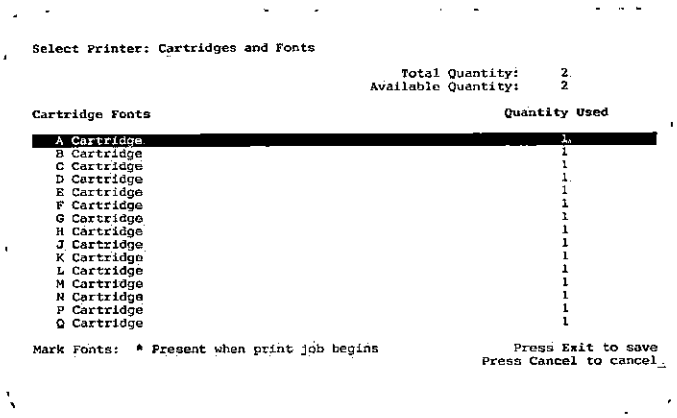
Sheet Feeder/Cartridges and Fonts

Selecting Sheet Feeder or Cartridges and Fonts displays information stored in the ALL file.

11 Select Cartridges and Fonts (5).

A menu is displayed of the resources defined in the ALL file (Cartridge Fonts and Soft Fonts). Selecting Cartridge Fonts displays all the cartridges defined for the HP LaserJet Series II printer.

12 Press **Enter** to display a list of defined cartridges.



By marking a cartridge with a asterisk (*), you indicate to WordPerfect that you want the fonts found on that cartridge copied from the ALL file to the PRS file. The asterisk also indicates that the cartridge is already present in the printer at the beginning of a print job.

13 Type an asterisk (*) to mark the A Cartridge, and then press **Exit** (F7) to return to the list of resources.

14 Press **Exit** (F7) to leave the list of resources and return to the Edit menu.

As soon as you press **Exit**, WordPerfect begins the process of copying all the A Cartridge fonts from the ALL file to the PRS file, updating the AFCs and substitute fonts for each font (including built-in fonts) as it is copied.

As soon as the updating is completed, you are returned to the Edit menu for the HP LaserJet Series II.

Each time you return to the Cartridges and Fonts (or Sheet Feeder) menu, WordPerfect searches for and displays all the information stored in the ALL file. The cartridges or fonts already marked with an asterisk (and/or "+") indicate those items existing in the PRS file. All the unmarked cartridges or fonts are located in the ALL file, but have not been copied to the PRS file.

Initial Fonts

Selecting Initial Fonts displays a list of all the fonts (including soft fonts and those on cartridges) that have been copied to the PRS file. By marking a font, you are indicating which font WordPerfect should use (initial font) when no other font has been selected for a document.

The name of the marked font is stored in the WP{WP}.SET file, along with all the other default settings you have changed in WordPerfect.

Adding the Printer to the List

Once you finish editing the information about your printer, you can then press **Exit** to return to the Select Printer list.

15 Press **Exit** (F7) to return to the list of printers.

The list now includes the New Printer name, which can be selected at any time to format a document for printing.

Remember that the original information copied to the PRS file when you first select a printer is generic to *all* HP LaserJet Series II printers. However, as soon as you begin selecting fonts, editing forms, or selecting a sheet feeder, you are creating a PRS file for a *specific* HP LaserJet Series II printer.

Deleting the Printer from the List

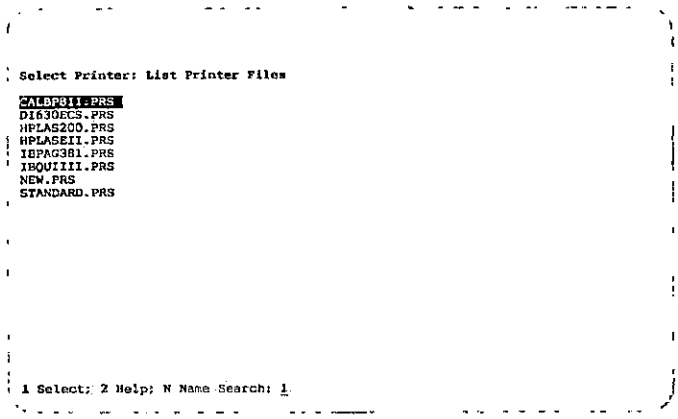
Once a printer has been added to the Select Printer list, it can easily be removed by using Delete.

16 With the cursor on the New Printer name, select Delete (5) and type **y** to delete the printer from the list.

Deleting the printer from the list simply means that the information in the WP{WP}.SET file is erased. The PRS and ALL files still exist on the hard disk or diskette.

17 Select Additional Printers (2) to display the additional printers list, and then select List Printer Files (4).

A list is displayed of the PRS files in the directory (or diskette) of printer files. Notice that the NEW.PRS file has not been deleted.



You can select the PRS file from this menu at any time to restore the printer to the Select Printer list.

18 Press **Exit** (F7) four times to return to WordPerfect's document editing screen.

Before finishing the exercise, you should delete the NEW.PRS file from your hard disk or WordPerfect 2 diskette (two diskette drives) by using **List Files** (F5). Once you have deleted the NEW.PRS file and have returned to the WordPerfect document editing screen,

19 Press **Exit** (F7), type **n**, and then type **y** to exit WordPerfect.

Editing the ALL File vs the PRS File

The Printer program and WordPerfect are design to work as a team in helping you make changes to the PRS file.

If any changes need to be made to command strings, numeric values, or YES/NO answers, they should be made to the ALL file in the Printer program first. After saving the edited ALL file, return to WordPerfect, display the Select Printer list, place the cursor on the name of your printer, and then select Update (7). The PRS file is then updated with the new information from the ALL file.

If any changes need to be made to AFCs or substitute fonts for fonts already in the PRS file, the changes can be made by editing the PRS file in the Printer program.

However, if you are adding new fonts to the PRS file, you should select them in WordPerfect from the Edit menu, and then let WordPerfect copy the fonts, and update all the AFC and substitute font selections to reflect the new font(s) being added to the PRS file. After the updating, you can always retrieve the PRS file into the Printer program to modify WordPerfect's selections.

In order to let WordPerfect update the AFCs and substitute fonts in the PRS file, no AFC or substitute font selections should be made in the ALL file, or WordPerfect simply copies the selections from the ALL file (even if there is only one), replacing all other selections in the PRS file.

Reviewing the Process

Now that you have been introduced to how WordPerfect creates a PRS file from an ALL file, and where information is stored about your printer, let's take a moment to review and discuss the relationship of the PRS file to the ALL file.

The purpose of an ALL file is to store a definition for a brand or model of printer. The purpose of a PRS file is to provide information from the ALL file that WordPerfect needs to print using your particular printer.

Edit Menu Items

By selecting a printer from an ALL file while in WordPerfect, you can create a PRS file for your printer, as well as store information in the WP{WP}.SET file about the printer. The Edit menu in WordPerfect lists some of the items stored in the PRS and SET files.

Item	Stored
Printer Name	WP{WP}.SET file
Printer Port	WP{WP}.SET file
Sheet Feeder	PRS file
List of all Sheet Feeders	ALL file
Forms	PRS file
Cartridges and Fonts	ALL file
Marked Cartridges and Fonts	PRS file
Asterisks and Plus Signs	WP{WP}.SET file
Initial Font (name only)	WP{WP}.SET file
List of Fonts	PRS file
Path for Downloadable Fonts	WP{WP}.SET file

Updating a PRS file

When a PRS file is updated in WordPerfect,

- If changes have been made to the information in the PRS file (except AFCs and substitute fonts), then WordPerfect asks if you want to keep the changes.

  Type **y** to keep the changes you have made, and have WordPerfect simply update the fonts; type **n** to have WordPerfect copy all the printer information from the ALL file.

- If AFC or substitute font changes have been made to the PRS file, then WordPerfect asks if you want to keep the changes.

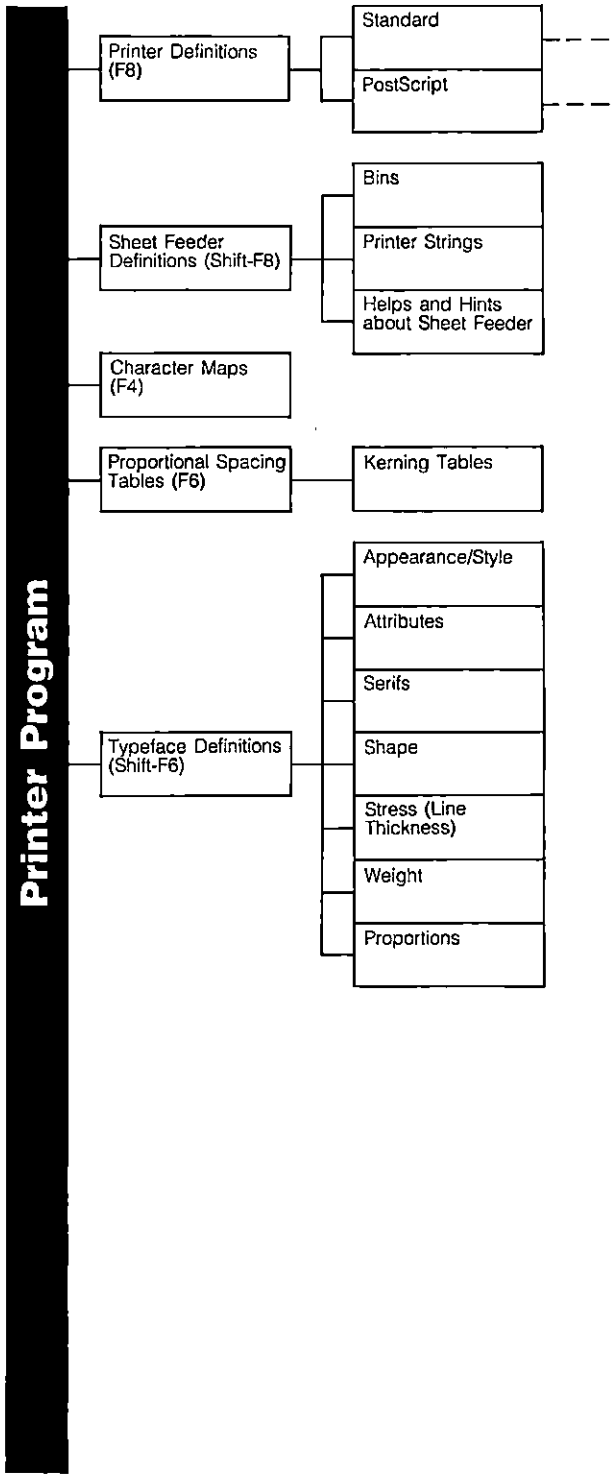
  Type **y** to keep the changes you have made, and have WordPerfect simply copy the marked fonts to the PRS file; type **n** to have WordPerfect copy the fonts and select new AFCs and substitute fonts.

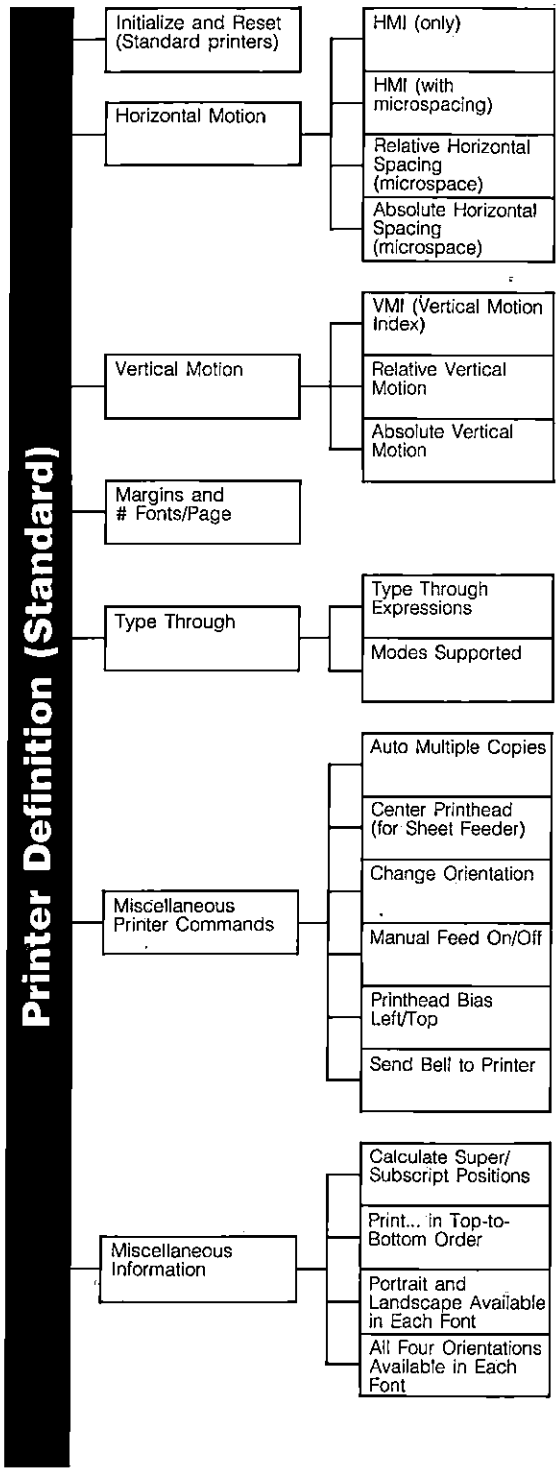
- If an AFC or substitute font has been selected in the ALL file, then the selection(s) in the ALL file are copied to the PRS file *without* stopping to ask if you want them replaced.

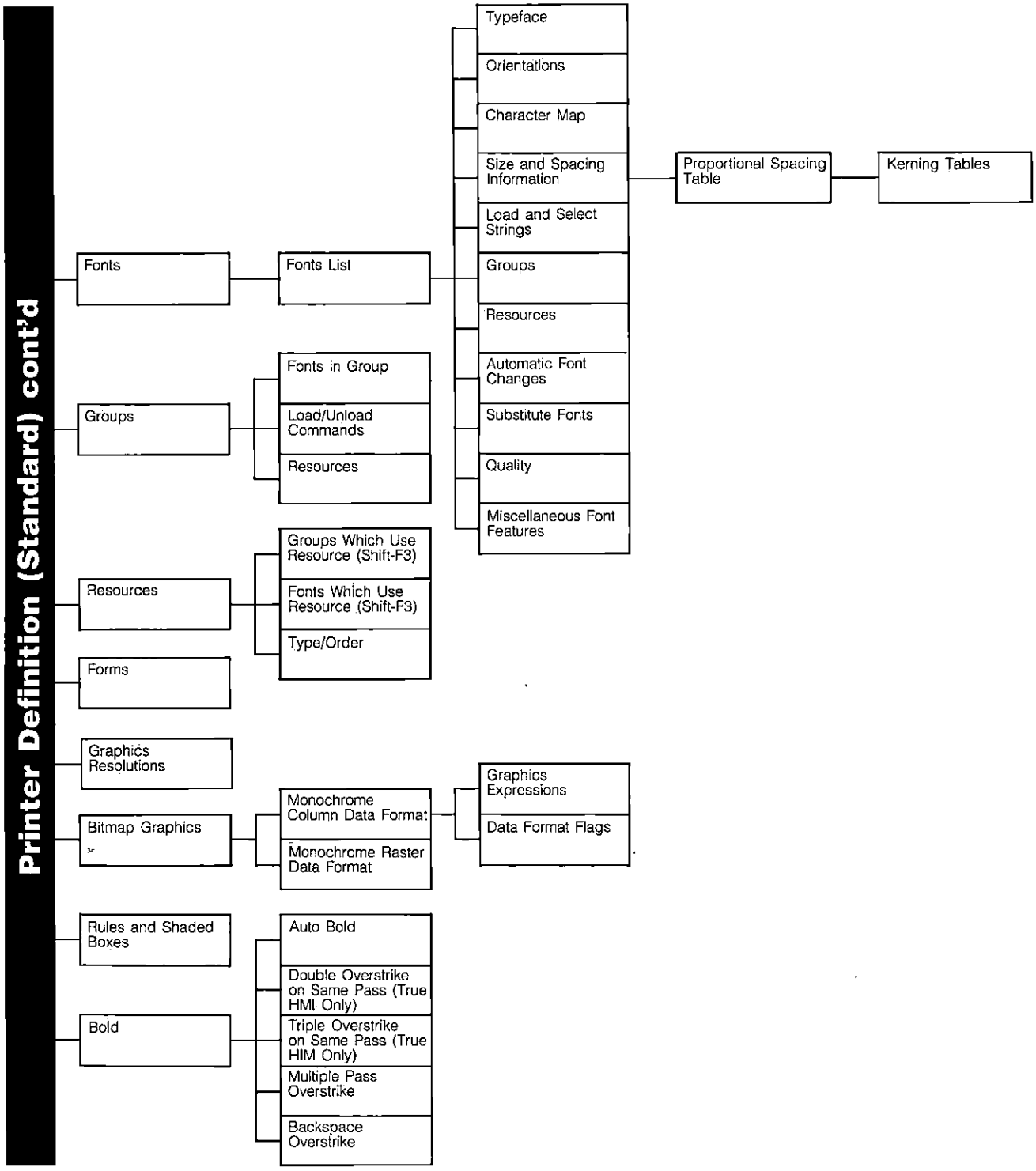
  Any existing selections in the PRS file are completely lost.

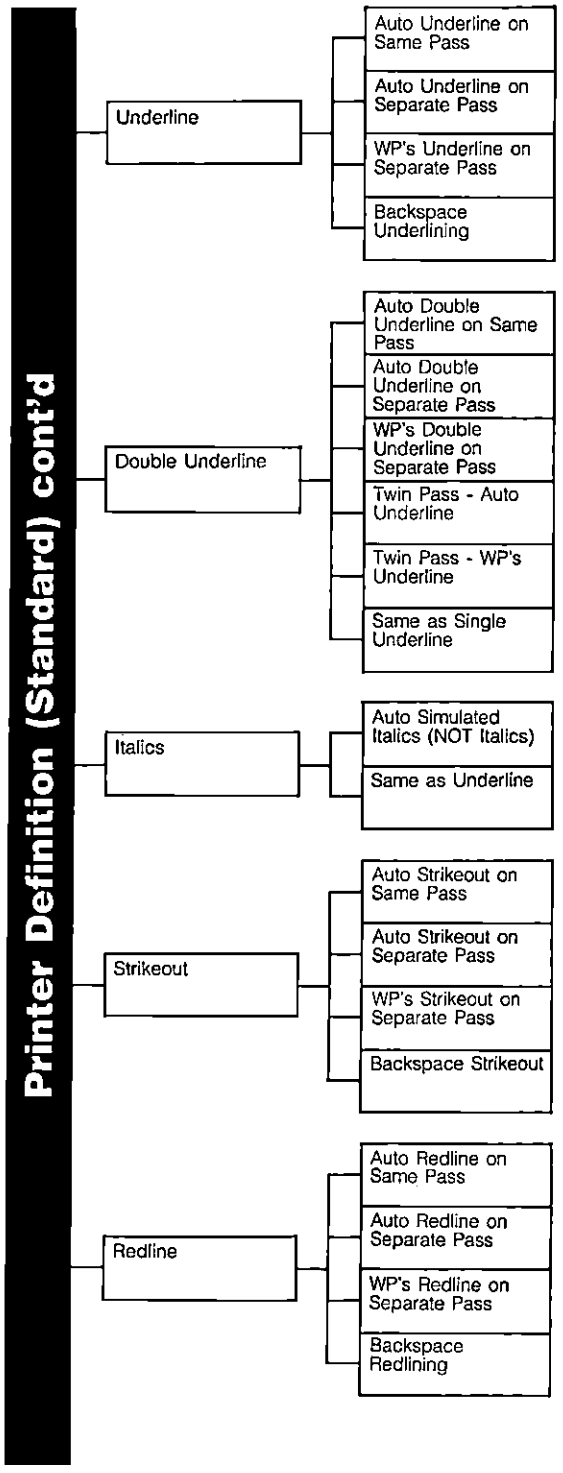
- If the PRS file has *not* been edited, then WordPerfect simply copies the printer information from the ALL file, and then copies and updates the fonts.

For more examples (and explanation) of the updating process, turn to *Fonts* and *Printers* in *Applications.*

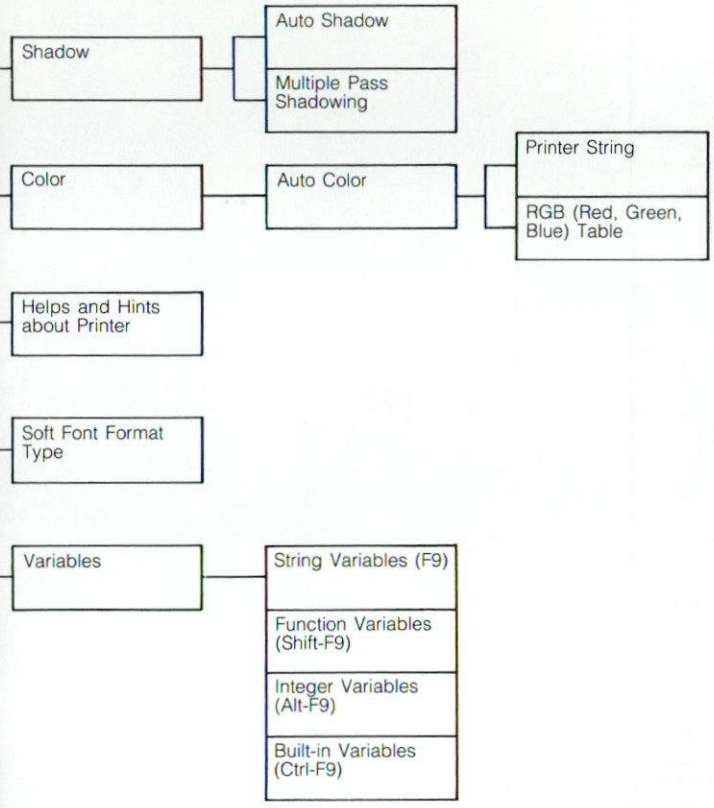

Printer Program
Printer Definitions (F8)
Standard
PostScript
Sheet Feeder Definitions (Shift-F8)
Bins
Printer Strings
Helps and Hints about Sheet Feeder
Character Maps (F4)
Proportional Spacing Tables (F6)
Kerning Tables
Typeface Definitions (Shift-F6)
Appearance/Style
Attributes
Serifs
Shape
Stress (Line Thickness)
Weight
Proportions

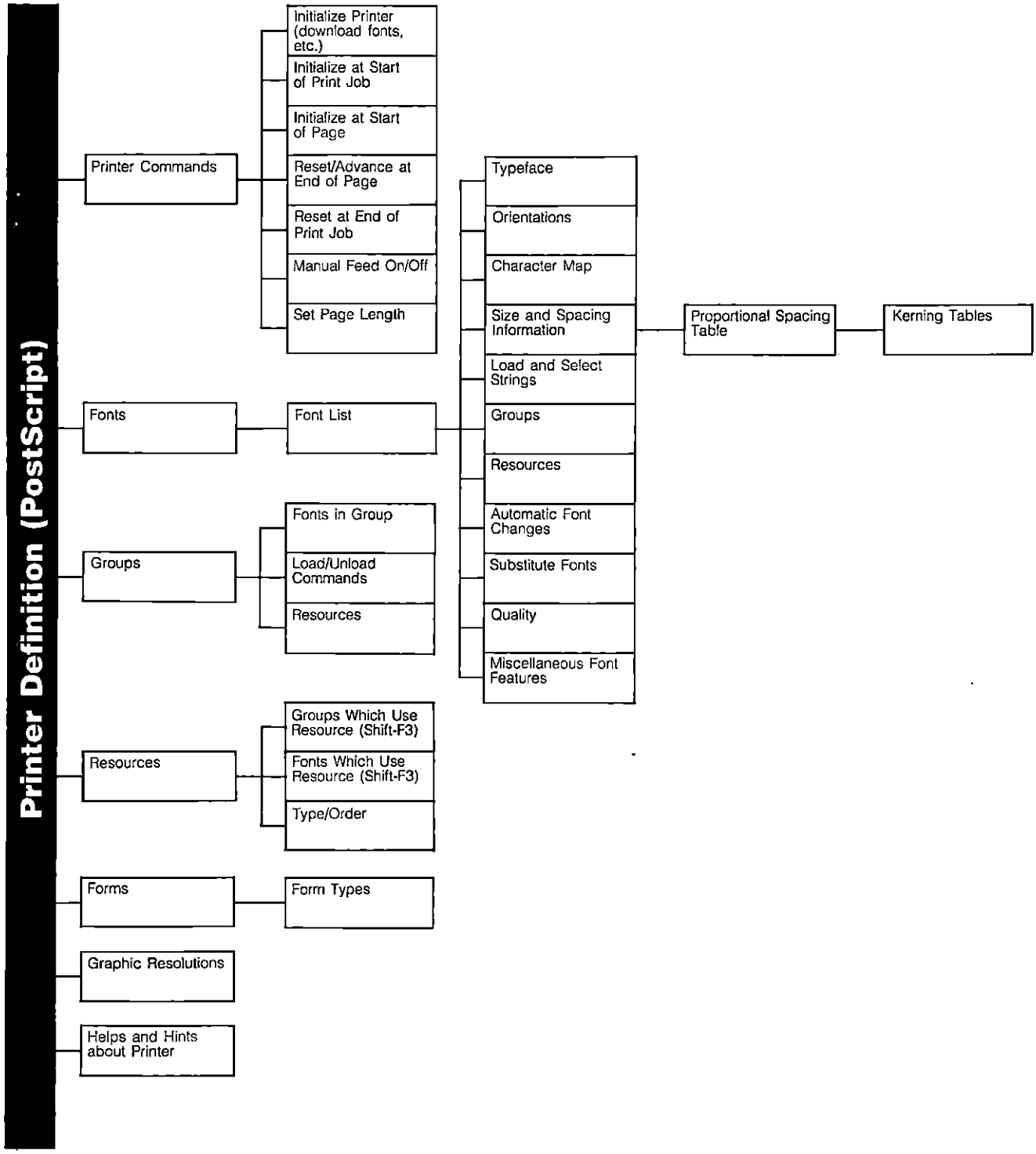

Printer Definition (Standard)
Initialize and Reset (Standard printers)
Horizontal Motion
HMI (only)
HMI (with microspacing)
Relative Horizontal Spacing (microspace)
Absolute Horizontal Spacing (microspace)
Vertical Motion
VMI (Vertical Motion Index)
Relative Vertical Motion
Absolute Vertical Motion
Margins and # Fonts/Page
Type Through
Type Through Expressions
Modes Supported
Miscellaneous Printer Commands
Auto Multiple Copies
Center Printhead (for Sheet Feeder)
Change Orientation
Manual Feed On/Off
Printhead Bias Left/Top
Send Bell to Printer
Miscellaneous Information
Calculate Super/ Subscript Positions
Print... in Top-to-Bottom Order
Portrait and Landscape Available in Each Font
All Four Orientations Available in Each Font

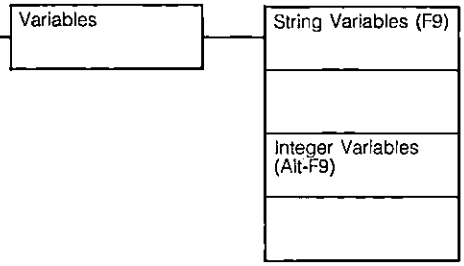

Printer Definition (Standard) cont'd
Fonts
Fonts List
Typeface
Orientations
Character Map
Size and Spacing Information
Proportional Spacing Table
Kerning Tables
Load and Select Strings
Groups
Resources
Automatic Font Changes
Substitute Fonts
Quality
Miscellaneous Font Features
Groups
Fonts in Group
Load/Unload Commands
Resources
Resources
Groups Which Use Resource (Shift-F3)
Fonts Which Use Resource (Shift-F3)
Type/Order
Forms
Graphics Resolutions
Bitmap Graphics
Monochrome Column Data Format
Graphics Expressions
Data Format Flags
Monochrome Raster Data Format
Rules and Shaded Boxes
Bold
Auto Bold
Double Overstrike on Same Pass (True HMI Only)
Triple Overstrike on Same Pass (True HIM Only)
Multiple Pass Overstrike
Backspace Overstrike


Printer Definition (Standard) cont'd
Underline
Auto Underline on Same Pass
Auto Underline on Separate Pass
WP's Underline on Separate Pass
Backspace Underlining
Double Underline
Auto Double Underline on Same Pass
Auto Double Underline on Separate Pass
WP's Double Underline on Separate Pass
Twin Pass - Auto Underline
Twin Pass - WP's Underline
Same as Single Underline
Italics
Auto Simulated Italics (NOT Italics)
Same as Underline
Strikeout
Auto Strikeout on Same Pass
Auto Strikeout on Separate Pass
WP's Strikeout on Separate Pass
Backspace Strikeout
Redline
Auto Redline on Same Pass
Auto Redline on Separate Pass
WP's Redline on Separate Pass
Backspace Redlining

Printer Definition (Standard) cont'd




Printer Definition (PostScript)
Printer Commands
Initialize Printer (download fonts, etc.)
Initialize at Start of Print Job
Initialize at Start of Page
Reset/Advance at End of Page
Reset at End of Print Job
Manual Feed On/Off
Set Page Length
Fonts
Font List
Typeface
Orientations
Character Map
Size and Spacing Information
Proportional Spacing Table
Kerning Tables
Load and Select Strings
Groups
Resources
Automatic Font Changes
Substitute Fonts
Quality
Miscellaneous Font Features
Groups
Fonts in Group
Load/Unload Commands
Resources
Resources
Groups Which Use Resource (Shift-F3)
Fonts Which Use Resource (Shift-F3)
Type/Order
Forms
Form Types
Graphic Resolutions
Helps and Hints about Printer


Variables
String Variables (F9)
Integer Variables (Alt-F9)

Printer Quick Reference

The following is a list of all the features in the Printer program that can be accessed from the keyboard. For a detailed description of each feature, turn to *Feature Summary* in *Appendix*.

Feature	Keystrokes
Arrow keys	↓,↑,→,←
Backspace	←
Bold	F6
Built-in Variables	Ctrl-F9
Cancel	F1
Caps Lock	Caps Lock
Character Maps	F4
Copy	Ctrl-F4
Delete	Del
Delete to End of Line	Ctrl-End
Delete to End of Page	Ctrl-PgDn
Edit Window	Ctrl-Enter
End	End
Enter	↵
Escape	Esc
Exit	F7
Full Edit Window	Ctrl-PgUp
Function Variables	Shift-F9
Go To	Ctrl-Home
Help	F3
Home	Home
Insert	Ins
Integer Variables	Alt-F9
Item Help	Alt-F3
Mark/Unmark	* (asterisk)
Mark/Unmark All	Alt-F5
Name Search	A-Z
Num Lock	Num Lock
Page Up	PgUp
Page Down	PgDn
Printer Definitions	F8
Proportional Spacing Tables	F6
Quit	Alt-F7
Retrieve	Shift-F10
Save	F10
Shift	⇧
Screen Down	+ (on num pad)
Screen Help	Ctrl-F3
Screen Up	- (on num pad)
♦Search	F2
♦Search	Shift-F2
Setup	Shift-F1
Sheet Feeder Definitions	Shift-F8
String Variables	F9
Switch	Shift-F3
Text In/Out	Ctrl-F5
Typefaces	Shift-F6
Underline	F8
View Errors	Ctrl-F2

Automatic Font Changes (AFCs)

Automatic font changes (AFCs) are font selections WordPerfect makes while printing a document to provide attributes (e.g., extra large, italics, small caps), characters from other fonts, or a font for a new print orientation (e.g., portrait, landscape).

Font Switching

A list of automatic font changes is assigned to each base font in WordPerfect. If you select a new base font (Ctrl-F8,4) in a document, WordPerfect begins using the new list of AFCs assigned to the base font.

As soon as WordPerfect switches to a font in the AFC list, all the information defined for the new font (AFCs and substitute fonts included) is used until WordPerfect switches back to the original base font.

AFC Search Order

WordPerfect searches through the AFCs for the correct font by starting with the orientation, moving on to the character sets, and finally searching through the attributes (size attributes first and then appearance attributes).

At each point in the search, a font may be selected, and an entirely new set of AFCs used. For example, if a title is formatted for extra large and italics, WordPerfect switches to the extra large font first, and then uses the Italics AFC listed for that font to print the title in italics.

PRS File Updating

Whenever a printer is selected in WordPerfect, a PRS file for the printer is created from one of the ALL files. Included in the PRS file are all the AFC and substitute font selections made by WordPerfect for the fonts in the file. The selections are made whenever the "Updating Fonts:" message is displayed in WordPerfect.

If a change is made to an AFC (or substitute font) in the PRS file using the Printer program, then WordPerfect always asks if you want new automatic font changes when the PRS file is updated. If you type **y** for "yes," then WordPerfect creates new AFCs for the fonts in the PRS file, and the original selections are replaced. If you type **n** for "no," then the AFCs selections already in the PRS file remain undisturbed by WordPerfect.

If even one AFC is selected in the ALL file, then WordPerfect copies the AFCs in the ALL file for the printer to the PRS file. All existing AFCs in the PRS file are automatically replaced *without* a message prompting you for a "yes" or "no" answer.

A PRS file is updated whenever you select Update (7) from the Select Printer menu (Shift-F7,s) in WordPerfect, or whenever you select a new font or cartridge from the Fonts and Cartridges menu while editing a printer in WordPerfect.

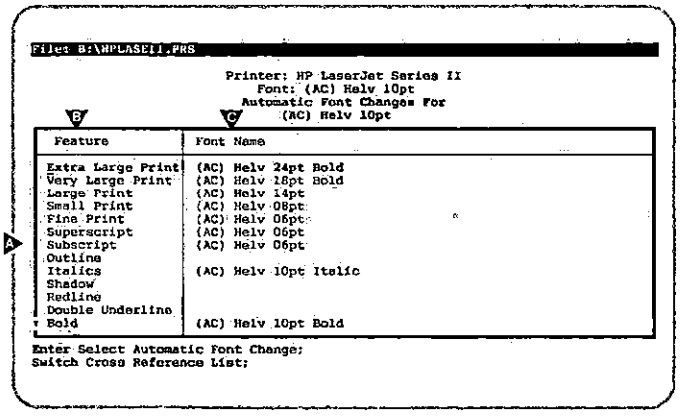
Displaying the AFC List

The list of AFC changes for a font can be displayed and edited while in the Printer program by retrieving the PRS file that contains the font.

1. Start the Printer program.
2. Press **Retrieve** (Shift-F10) and enter the name of the PRS file.
3. Press **Enter**, with the cursor on the printer name, to display the Printer menu.
4. Select Fonts to display a list of all the fonts available in the PRS file.
5. Place the cursor on the name of a font you want to edit, and then press **Enter** to display the Font menu.
6. Type **a** and press **Enter** to place the cursor on the Automatic Font Changes item, and then press **Enter** again to display a list of all the AFCs for the selected font.

The list includes a column of AFC features and a column of fonts selected for those features.

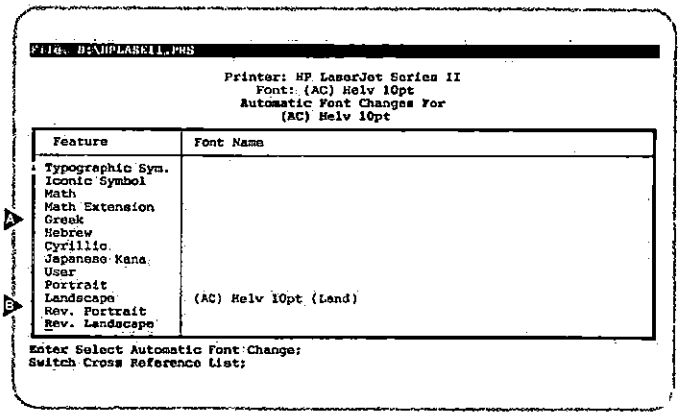
A AFCS FOR ATTRIBUTES
B FEATURE COLUMN
C FONT COLUMN



At the top of the list are AFCs for the size attributes (e.g., Extra Large, Small, Fine) and appearance attributes (e.g., Bold, Italics, Redline) in WordPerfect.

7 Press **Home** twice and then **Down Arrow** (↓) to move to the bottom of the list.

A AFCS FOR CHARACTER SETS
B AFCS FOR ORIENTATION



Notice that the list also includes AFCs for all the WordPerfect character sets (e.g., Box Draw, Math, Greek) and printing orientations (e.g., Portrait, Landscape).

Attribute AFCs

The attributes listed in the AFC menu are those that can be found on the Font Size/Appearance menus in WordPerfect. WordPerfect switches to the font for an attribute AFC at the on code in a document (e.g., [EXT LARGE]), and remains in that font until the off code for the attribute is encountered (e.g., [ext large]). At that point, WordPerfect switches back to the base font.

If a font is listed for Small Caps, WordPerfect checks to see if it is a true small caps font. If so, then the characters are printed as designed in the font.

If, however, the font is a not a small caps font, WordPerfect converts any lowercase letters to uppercase and prints them in the selected font. Uppercase letters in the document are printed in the current font. In order for Small Caps to print as expected, a font should be selected that is smaller (by at least two points) than the base font.

Character AFCs

All 13 character sets are listed by name in the AFC menu. By selecting a font for a character set, WordPerfect automatically switches to that font if a character in the current font is not found. After printing the character, WordPerfect then switches back to the current (base) font to continue looking for characters.

A single font will usually contain many of the characters listed in a WordPerfect character set. By switching to that font with an automatic font change, the printed characters in that set maintain the same point size, attributes, etc., for a consistent look in the printed document.

If all the characters in a WordPerfect character set do not exist in a single font, then select the font with the most characters (or most frequently-used characters) as the AFC font, and then mark the other fonts with characters in the set as substitute fonts for the AFC font (see *Substitute Fonts* in *Applications* for details).

While characters from other fonts were accessed from the character table in WordPerfect 4.2 (i.e., with the <V> and <W> commands), the AFC and substitute font features are designed to replace the 4.2 method.

Because WordPerfect only switches to the character set AFC font when characters are needed that are not in the current font, spacing may not be accurate for the AFC font as the space character usually comes from the current font. For example, if you have a Line Draw font (mono-spaced) selected as an AFC for a proportionally-spaced font, then the space character will come from the proportionally-spaced font and the line draw characters will not be printed correctly.

Orientation AFCs

Printers such as the HP LaserJet Series II provide a separate font for each orientation. For example, Helvetica 10pt Portrait is a different font from Helvetica 10pt Landscape.

In order to help WordPerfect automatically select the correct font when changing the paper size/type for a document, AFCs can be assigned to the four orientations. For example, if Standard Landscape is selected for a page in a document that was created using the Standard paper form/type, WordPerfect will select the Landscape font from the AFCs (if one is listed).

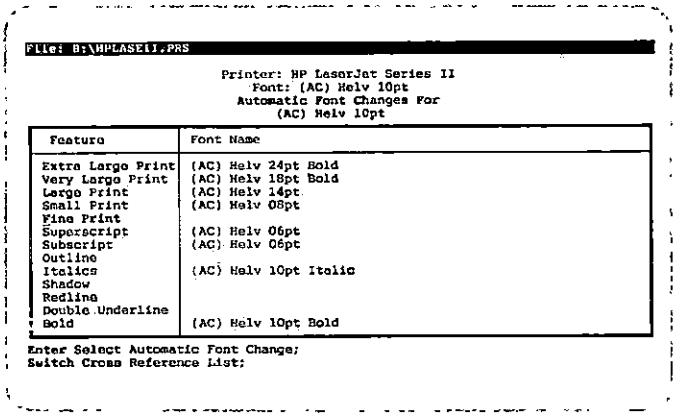
The AFC font for orientation is used until another code is encountered in the document that changes the orientation.

If a font can be printed in both portrait and landscape orientations, then only fonts that can also print in portrait and landscape should be selected for AFCs, or WordPerfect will not switch to the font.

Assigning an AFC Font

You can assign a font to an AFC by pressing **Enter** and then selecting a font from the displayed list.

For example, a font for the Fine Print attribute needs to be added to the following AFC list for Helvetica 10pt on the HP LaserJet Series II.



8 Type **f** and then press **Enter** to place the cursor on the Fine Print attribute.

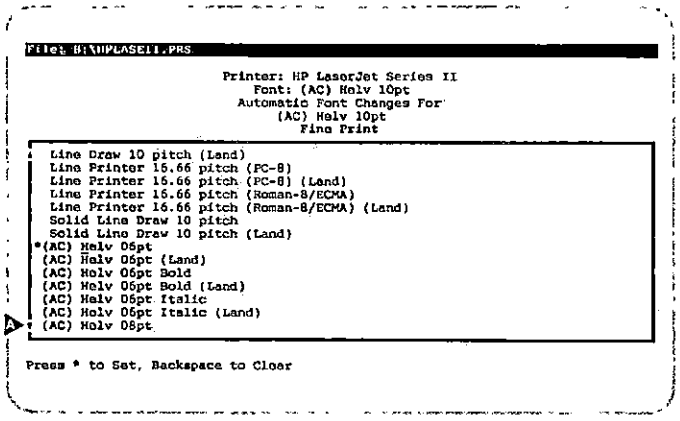
9 Press **Enter** to display a list of all the fonts in the PRS file.

10 Place the cursor on the font to assign to the Fine Print attribute.

11 Type an asterisk (*) to mark the font (or press **Enter** and type **y**).

If the list of fonts is longer than can be displayed in the menu, an arrow appears in the lower left corner of the menu border.

▲ MORE FONTS AVAILABLE


File: B:\HPLASE11.PRS
Printer: HP LaserJet Series II
Font: (AC) Helv 10pt
Automatic Font Changes For
(AC) Helv 10pt
Fine Print
Line Draw 10 pitch (Land)
Line Printer 16.66 pitch (PC-8)
Line Printer 16.66 pitch (PC-8) (Land)
Line Printer 16.66 pitch (Roman-8/ECMA)
Line Printer 16.66 pitch (Roman-8/ECMA) (Land)
Solid Line Draw 10 pitch
Solid Line Draw 10 pitch (Land)
*(AC) Helv 06pt
(AC) Helv 06pt (Land)
(AC) Helv 06pt Bold
(AC) Helv 06pt Bold (Land)
(AC) Helv 06pt Italic
(AC) Helv 06pt Italic (Land)
(AC) Helv 08pt
Press * to Set, Backspace to Clear

The cursor keys (e.g., Down Arrow, Screen Down) can be used to scroll the rest of the list until the name of the font is displayed in the menu.

12 Press **Exit** (F7) to return to the AFC list.

Saving the PRS File

Once you finish assigning fonts for automatic font changes, you need to save the PRS file so that the new AFCs can be used in WordPerfect.

13 Press **Quit** (Alt-F7), type **y**, and then press **Enter** to use the same name for the PRS file.

14 Type **y** to replace the original file on disk with the edited version, and then type **y** again to exit the Printer program.

While saving the PRS file, the Printer program checks the file to make sure there are no inconsistencies or errors in the file. If one or more are found, then a message is displayed indicating that information about the errors has been saved in a PRS.ERR file.

You can display the contents of the file while in the Printer program by pressing **View Errors** (Ctrl-F2), or by retrieving the file into WordPerfect.

Testing an AFC Font

You can test the attribute AFCs for a base font while in WordPerfect by selecting the base font, and then sending the PRINTER.TST file (on the Conversion diskette) to the printer.

The character set AFCs for a base font can be tested by sending the CHARMAP.TST file (on the Conversion diskette) to the printer or by previewing it with View Document (Shift-F7,6). The characters for the character sets will be printed or displayed along with those of the base font.

Bold

Bolding is a method of highlighting text in a document by printing it in a heavier typeface than the surrounding characters. While bold text in a WordPerfect document can be marked by using the Bold attribute on the Appearance menu (Ctrl-F8,2,1), the way WordPerfect prints the bolded text depends upon the information in the PRS file.

AFCs and Methods

WordPerfect can print bolded text for the current font by switching to a font with characters defined as bolded (e.g., Helvetica Bold 10pt), or by using the printer's features (e.g., Backspace, Horizontal Motion, Auto Bold) to create bolded characters from the current font.

If a font is assigned to the Bold automatic font change (AFC) for the current font, then WordPerfect switches to that font whenever text is bolded in the document.

If a bolded font is *not listed* in the automatic font changes, WordPerfect checks a list of bolding methods to see if a method has been selected to bold text. If a method is marked with an asterisk, and includes the appropriate information, then WordPerfect uses that method for bolding the text.

Both the list of automatic font changes and the list of bolding methods can be viewed and edited by retrieving the PRS file for the printer into the Printer Program.

PRS and ALL files

If you decide to mark bold text in a document by assigning a font as an AFC, then the change should be made to the PRS file. However, be aware that if you ever update the PRS file from the ALL file in WordPerfect, then the change you made to the AFC for Bold will be erased if you let WordPerfect assign new automatic font changes.

If you decide to change the method WordPerfect uses to bold text when an AFC is not available, then the change should be made to the ALL file so that the same method is always available whenever you update the PRS file from the ALL file in WordPerfect.

Automatic Font Change (AFC)

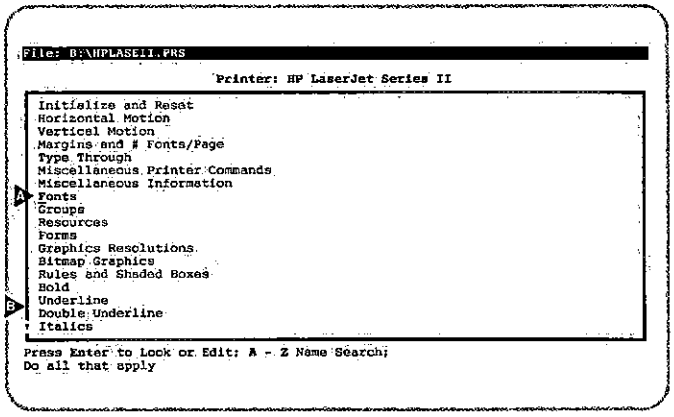
Each font displayed for a printer in the WordPerfect base font list (Ctrl-F8,4) is assigned a list of automatic font changes (AFCs). The AFC list includes an automatic font change for the Bold feature, as well as other font attributes in WordPerfect (e.g., Underline and Redline).

For details on automatic font changes, turn to Automatic Font Changes (AFCs) in Applications or under Fonts in the Printers section of Reference.

If you want to change to a special font for indicating bolded text in a document (e.g., Bold Oblique or Italics), then you can select the font by editing the PRS file.

1. Start the Printer program.
2. Press **Retrieve** (Shift-F10) and enter the name of the PRS file.
3. Press **Enter**, with the cursor on the printer name, to display the Printer menu.

FONTS
ATTRIBUTES



Each font displayed for a printer in the WordPerfect base font list (Ctrl-F8,4) is assigned a list of automatic font changes (AFCs). The AFC list includes an automatic font change for the Bold feature.

For details on automatic font changes, turn to Automatic Font Changes (AFCs) in Applications or under Fonts in the Printers section of Reference.

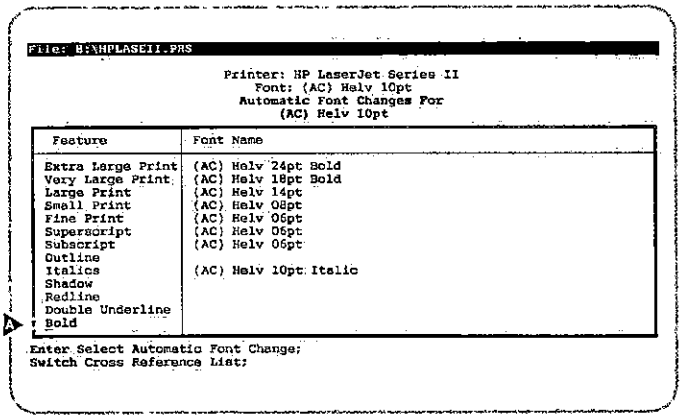
4 Select Fonts from the Printer menu to display a list of all the fonts available in the PRS file.

5 Place the cursor on the name of the font for which you want to assign a Bold automatic font change, and then press **Enter** to display the Font menu.

6 Select Automatic Font Changes to display a list of all the AFCs for the font.

7 Type **b** and then press **Enter** to place the cursor on the Bold attribute.

▲ FONT FOR BOLD ATTRIBUTE



If a font is not listed for Bold, or you want to change the listed font, simply press **Enter** and then select a bold font from the displayed list.

8 Press **Enter** to display a list of all the fonts in the PRS file.

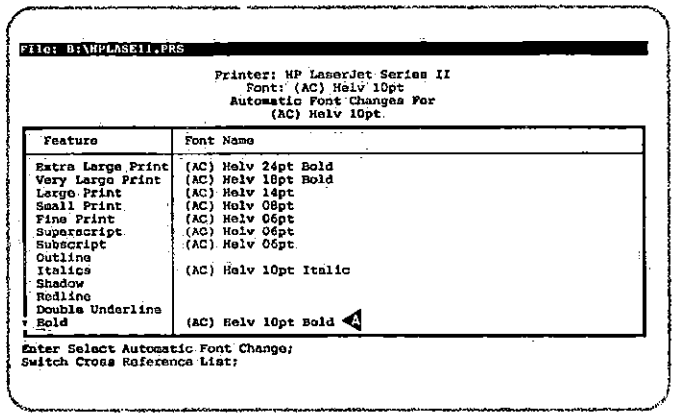
9 Place the cursor on the font you want to assign to the Bold attribute.

10 Type an asterisk (*) to mark the font (or press **Enter** and type **y**).

If the list of fonts is longer than can be displayed in the menu, an arrow appears in the lower left corner of the menu border. The cursor keys (e.g., Down Arrow, Screen Down) can be used to scroll through the rest of the list until the name of the font you want is displayed in the menu.

11 When you finish, press **Exit** (F7) to return to the AFC list.

⚠ FONT FOR BOLD ATTRIBUTE



With a font selected for the Bold automatic font change, WordPerfect uses that font each time bolded text appears in a document.

12 Press **Quit** (Alt-F7), type **y**, and then press **Enter** to use the current name of the PRS file.

13 Type **y** to replace the PRS file on disk with the edited version, and then type **y** again to exit the Printer program.

You can test the Bold automatic font change in WordPerfect by selecting the base font from the Fonts menu (Ctrl-F8,4), pressing **Bold** (F6), typing a line of text, and then sending the text to the printer.

Bold Methods

Whenever bolded text appears in a document during a print job, and a font is not selected for an automatic font change (AFC), then WordPerfect checks a list of bolding methods in the PRS file to find an alternative way to bold text for the current font.

If a method is marked, then WordPerfect uses the information for that method to print bolded text, unless the SETMETHOD function has been used (see *Multiple Methods* below for details).

Displaying the Bold Methods

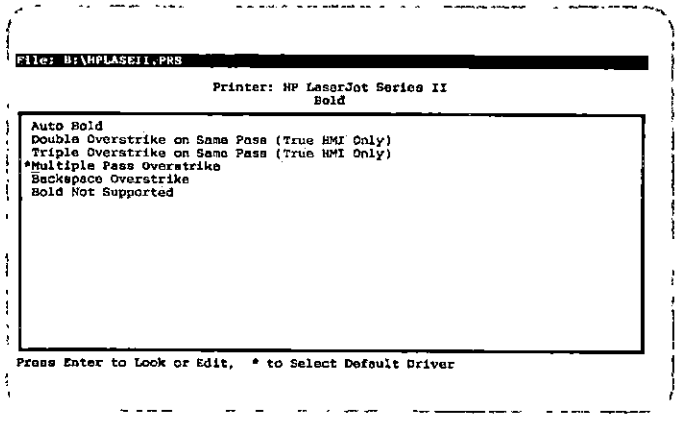
If you are not satisfied with the current method used to create bolded text, you may want to edit the ALL file to change the method.

1 Start the Printer program.

2 Press **Retrieve** (Shift-F10) and enter the name of the ALL file that contains information for your printer.

3 Place the cursor on the name of your printer, and then press **Enter** to display the Printer menu.

4 Type **bold** and then press **Enter** to move the cursor to the Bold item, and then press **Enter** to display the Bold menu.


File: B:\HPLASEII.PRS
Printer: HP LaserJet Series II
Bold
Auto Bold
Double Overstrike on Same Pass (True HMI Only)
Triple Overstrike on Same Pass (True HMI Only)
*Multiple Pass Overstrike
Backspace Overstrike
Bold Not Supported
Press Enter to Look or Edit, * to Select Default Driver

A list of five methods is displayed on the screen (plus Bold Not Supported). Of all the bolding methods, only Auto Bold actually uses the printer's method to create bolded characters. If your printer includes a Bold On and Bold Off command (check the printer manual), then these commands can be entered for Auto Bold.

The rest of the methods listed in the menu let WordPerfect use the horizontal movement of the printhead to create bolded characters.

The Overstrike and Multiple Pass methods create bolded characters by printing each character two or more times, with each new character slightly offset (usually to the right) from the previous character. By overstriking characters, a thicker character is created that appears bold on the printed page.

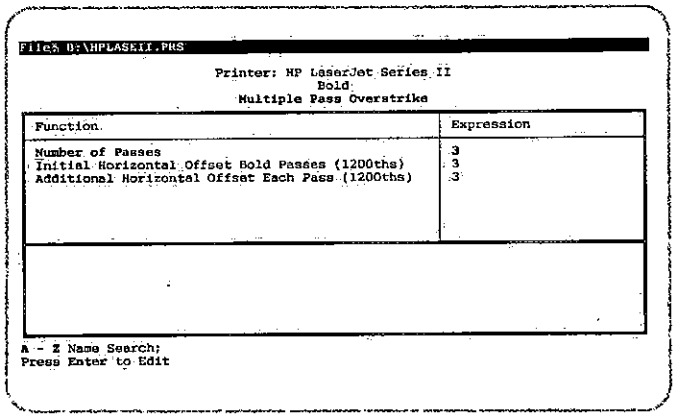
The Backspace method simply uses the printer's ability to back up the full width of the printed character and print the same character again. By printing the same character in the same place several times, a bolded character can be created. This method should *only* be used when no other method is available.

Editing a Method

For example, the Multiple Pass Overstrike method can be set up to overstrike characters several times on each pass of the printhead.

5 Place the cursor on Multiple Pass Overstrike, and then press **Enter**.

Notice that all WordPerfect needs are the number of passes, the offset (in 1200ths of an inch) for the first pass, and the offset (in 1200ths of an inch) for all additional passes.



A negative number for an offset moves the printhead to the left, while a positive number for the offset moves the printhead to the right.

6 Press **Enter** and type the number of passes.

7 Press **Enter** and type the offset for the second pass.

8 Press **Enter** and type the offset for the remainder of the passes.

9 Press **Exit** (F7) twice to return to the Bold menu.

10 Type an asterisk (*) to mark the method.

The Multiple Pass Overstrike method is now set to be used by the printer when no AFC font for the Bold attribute is listed.

Saving the ALL File

With the bold method marked, and the appropriate information entered, the edited ALL file should then be saved.

11 Press **Quit** (Alt-F7), type **y**, and then press **Enter** to use the same name for the ALL file.

12 Type **y** to replace the original file on disk with the edited version, and then type **y** again to exit the Printer program.

Updating the PRS File

The final step in adding a bold method is to update the PRS file from the ALL file in WordPerfect.

13 Start WordPerfect.

14 Press **Print** (Shift-F7), and then select Select Printer (s).

15 Place the cursor on the name of your printer, and then select Update (7).

If you have edited printer commands in the PRS file, then a "Changes to the .PRS file will be lost. Continue? (Y/N) N" message appears. If you type **y** to continue, then the changes in the PRS file will be replaced by the information in the ALL file. If you type **n**, then the PRS file is not updated, and the new font is not added to the file.

16 Type **y** to copy information from the ALL file to the PRS file (updating).

If you have edited any automatic font changes (AFCs) or substitute fonts in the PRS file, then a "Do you want new Automatic Font Changes? (Y/N) No" and/or "Do you want new Substitute Fonts? (Y/N) No" message appears. If you type **y** to answer either question, then any changes in the PRS file are replaced by the updating done by WordPerfect. If you type **n**, then WordPerfect adds the font definition, but does not change the selections in the PRS file.

17 Type **y** to either question if you want WordPerfect to update the fonts.

WordPerfect does not update AFCs and substitute fonts in the PRS file if they have already been marked in the ALL file. For this reason, it is important to make all your editing changes to AFCs and substitute fonts in the PRS file.

18 Once the updating is completed, press **Exit** (F7) two times to return to the Select Printers list.

19 Place the cursor on the name of your printer, and then press **Enter** to select the printer.

20 Press **Exit** (F7) to return to the WordPerfect document editing screen.

Testing the Bold Method

While in the document editing screen, you can test the bold method by selecting a base font that does not have a Bold automatic font change assigned.

21 Press **Font** (Ctrl-F8), select Base Font (4), and then place the cursor on the name of a base font that does not have a Bold automatic font change assigned.

22 Press **Enter** to select the font.

23 Press **Bold** (Ctrl-F8), type a line of text, and then send the text to the printer.

The printed text should be bolded with the method you selected in the Bold menu. If not, you may want to retrieve the PRS file into the Printer program to make sure that the method is marked, and that the information for the method is entered correctly.

Multiple Methods

While only one method can be marked at a time, information can be entered for one or more methods, and then a method selected in the Select Font command (Load and Select Strings in the Font menu) by using the SETMETHOD function.

For example, entering **SETMETHOD(BOLD,DOUBLEOVER)** as part of the Select Font command selects the Double Overstrike on Same Pass method for the font, even though the Auto Bold method may be marked (*) in the Bold menu for the printer.

Because WordPerfect continues using the new Bold method until another SETMETHOD command is encountered, you need enter the SETMETHOD command in the Deselect Font string to set the method back to the default method marked (*) in the Bold menu.

For example, if the default method for the printer is Auto Bold, then entering **SETMETHOD(BOLD,AUTOSAME)** for the Deselect Font command sets the Bold method back to Auto Bold when WordPerfect switches to another font.

The SETMETHOD command should only be entered in the Select and Deselect Font command strings, or "garbage" printing will occur. For details on using the SETMETHOD command, turn to *WordPerfect Description Language (WPDL)* in *Appendix.*

Character Maps

A font is a set of characters printed in a particular typeface (e.g., Helvetica, Garamond) and size (e.g., 10 points). Each character is assigned a unique command or code by the manufacturer that can be sent to the printer to select and print the character.

The character commands for a font are stored in a character map in the PRS or ALL file. As a document is sent to the printer, WordPerfect checks the character map for the command needed to print each character. The command is sent, and the character is printed on the page.

AFCs and Substitute Fonts

If a command is not found in the character map for a character, then WordPerfect checks the automatic font change (AFC) list for a font assigned to the WordPerfect character set where the character is located (e.g., Multinational 1, Box Draw). If a font is not listed for the character set AFC, then WordPerfect checks the list of substitute fonts.

If a command is not listed in the character maps assigned to the AFC or substitute fonts (or any AFCs or substitute fonts listed for them), then the character is not printed.

Diacritical Markings

An exception to the rule involves diacritical markings. Some fonts include one or more diacriticals in the font, but do not have all the diacritical letters available. If you request a diacritical letter that does not exist, then WordPerfect tries to use the available diacritical character to create the letter for you.

For example, if a lowercase "a" and an umlaut "¨" both exist in a font, then WordPerfect tries to create an a umlaut "ä".

Helps and Hints

You can check to see if a character will print in a document by displaying the text in the preview screen (Shift-F7,6) in WordPerfect (graphics display cards only). If the character appears in the preview screen, then WordPerfect has found a command for the character in the character map (or in the map of an AFC or substitute font).

If the font is assigned a proportional spacing table, then a character width must also be entered in the proportional spacing table for WordPerfect to print the character and display it in the preview screen.

If the character displayed in the preview screen and the one printed on the page are two entirely different characters, then an incorrect command exists in the character map and needs to be edited. If you know that a character can be printed from a font, but is not displayed in the preview screen (or printed), then a command is missing from the font's character map for that character.

In both cases, you need to retrieve the PRS file into the Printer program to edit the character map for the font (see *Editing a Character Map* below for details).

WordPerfect 4.2 Character Maps

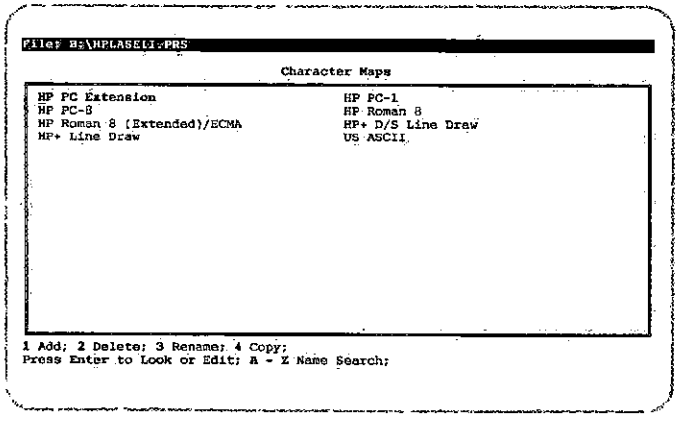
Character maps from WordPerfect 4.2 can be converted to WordPerfect 5.0 character maps by using the Font Conversion program found on the Convert diskette in your WordPerfect 5.0 package.

See WordPerfect 4.2 Printer Definitions in Applications for details.

Creating a Character Map

Whenever you want to create a character map for a font definition, the character map should be created in the ALL file, assigned to the font definition, and then updated in the PRS file.

1. Start the Printer program.
2. Press **Retrieve** (Shift-F10) and enter the name of the ALL file that contains the font definition.
3. Press **Character Maps** (F4) to display a list of all the character maps in the file.



The fewer the fonts in the file, the fewer character maps are needed. In fact, when WordPerfect creates a PRS file from an ALL file, only the character maps assigned to the fonts being copied are included in the PRS file.

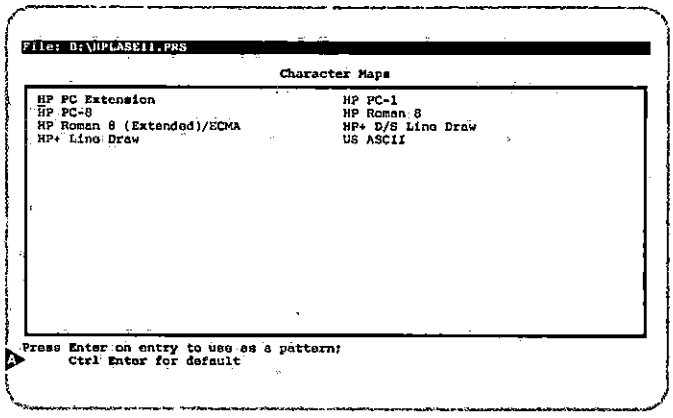
Adding the Character Map to the List

A new character map can be created for a particular font (or fonts) by using Add from the menu at the bottom of the list of character maps.

4 - Select Add (1) to add a new character map to the list.

A message is displayed at the bottom of the menu requesting a pattern to use for the new character map.

▲ PATTERN MESSAGE



By selecting a character map to use as a pattern, you may be able to save many hours of entering commands. In addition to the commands, any variables created for and used by the character map (see *Character Maps* in *Reference* for details) are also copied to the new character map.

However, if you want to avoid copying any commands or variables from an existing character map, you can press **Ctrl-Enter** to create an empty character map.

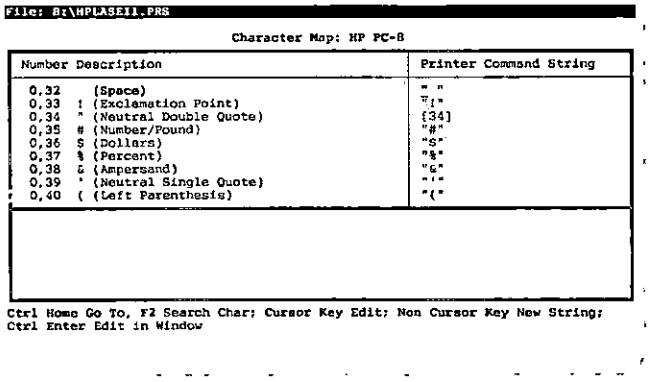
5 - Place the cursor on an existing character map and press **Enter**, or press **Ctrl-Enter** to create a new (empty) character map.

6 - Enter a name for the character map.

Displaying the Character Map

After entering a name, the character map is sorted in alphabetical order in the list, and is ready for entering and editing commands.

7 Press **Enter** to display the added character map.



The character map is divided into two columns. The left column includes the character set number and character name for each character in the WordPerfect character sets. The right column contains a command (e.g., "$", [34]) for each character available in the font.

The WordPerfect character sets represent most of the characters available in the printing industry, and each set contains characters with a common purpose (e.g., Multinational, Box Draw, Math). The characters available for a particular font may be scattered through several of the WordPerfect character sets.

For example, the HP PC-8 character map used by the Courier 10 pitch font built into the HP LaserJet Series II printer includes characters in the following WordPerfect character sets: ASCII, Multinational 1, Multinational 2, Box Draw, Typographic Symbols, Iconic Symbols, Math, and Math Extension.

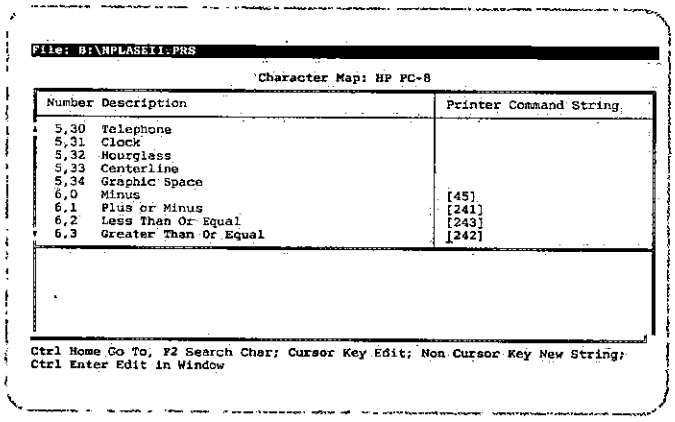
Most fonts, however, are designed for a more specific purpose, and will include characters in only two or three WordPerfect character sets.

Scrolling Through the Character Map

You can scroll through the character map table a character set at a time by pressing **Page Down** (PgDn) or **Page Up** (PgUp), or by pressing **♦Search** (F2) or **♦Search** (Shift-F2) and then typing all or part of a description listed in the table to search for the character by name.

If you want to go directly to a particular character in a character set, you can use **Go To** (Ctrl-Home).

8 Press **Go To** (Ctrl-Home), and then type **6,3** and press **Enter** to move to the third character in the Math character set.


File: B:\HPLASE11.PRS
Character Map: HP PC-8
Number Description
Printer Command String
5,30 Telephone
5,31 Clock
5,32 Hourglass
5,33 Centerline
5,34 Graphic Space
6,0 Minus [45]
6,1 Plus or Minus [241]
6,2 Less Than Or Equal [243]
6,3 Greater Than Or Equal [242]
Ctrl Home Go To; F2 Search Char; Cursor Key Edit; Non Cursor Key New String;
Ctrl Enter Edit in Window

You can also type a character from the keyboard (other than a number) when using **Go To** to move to that character in the table. Entering a single number moves to the first character in a character set.

Entering a Character Command

Once the cursor is on the character for which you want to enter (or edit) a command, simply begin typing to enter the command.

9 Type the command for the character, and then press **Enter**.

Normally the decimal value or the character itself is entered for the command string.

A decimal value should be entered in brackets (e.g., [34]), while the character should be entered in double quotation marks (e.g., "$"). A number entered from 1 to 255 is automatically placed in brackets. Only characters with decimal values from 32 to 126 can be entered in double quotation marks. All others should be entered as a decimal value (or binary, hexadecimal, or octal).

The values to enter for each character are listed in the printer or font manual, usually in a table that includes hexadecimal and decimal values for the characters in the font.

10 When you finish entering a command for each character in the font, press **Exit** (F7) to return to the list of character maps.

Assigning the Character Map

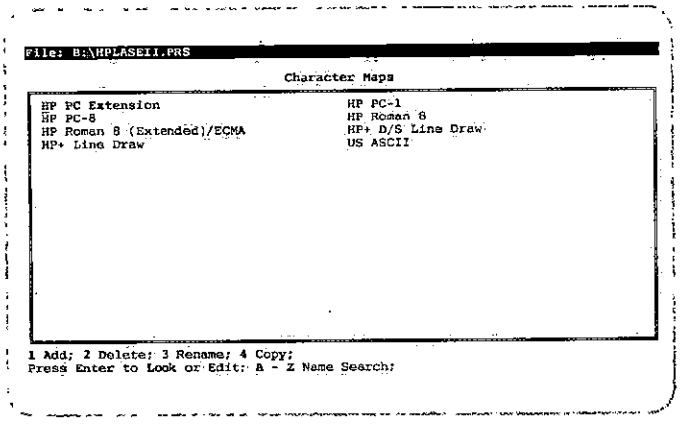
After creating the character map, it needs to be assigned to the font definition so that WordPerfect can actually print the characters in the font (and display them in the View Document screen).

11 Press **Printer Definitions** (F8) to make sure that you start from the list of printers.

12 Select the printer definition in which the font definition is stored, and then select Fonts from the Printer menu to display the list of fonts.

13 Select the font you want to assign the character map.

14 Select Character Map from the Font menu to display a list of character maps.



Notice that the list can also be edited at this point by selecting an option from the menu at the bottom of the list (e.g., Add, Delete, Rename). In fact, you may want to add the character map at this menu level, instead of at the top level of the Printer program.

However, the primary purpose of the list at this level is to let you assign a character map to the font.

15 Place the cursor on the character map you want to assign to the font, and then type an asterisk (*) to mark the character map.

Only one character map can be assigned to a font. For this reason, marking one character map removes the asterisk from a previously marked character map.

Now that the ALL file includes the new character map and the assignment to the font definition, the file can be saved for updating the PRS file.

16 Press **Quit** (Alt-F7), type **y**, and then press **Enter** to use the same filename.

17 Type **y** to replace the ALL file on disk with the edited version, and then type **y** to exit the Printer program.

Marking the New Font Definition in WordPerfect

While a character map can be copied directly from an ALL file to the PRS file in the Printer program, whenever the character map has been assigned to a new font definition, the updating of the PRS file should be done from WordPerfect.

18 Make sure that the ALL file that contains the new font definition is in your WordPerfect directory.

19 Start WordPerfect.

20 Press **Print** (Shift-F7) and select Select Printer (s) from the Print menu in WordPerfect.

21 Place the cursor on the name of your printer and select Edit (3) from the menu at the bottom of the screen.

An Edit menu similar to the following is displayed on the screen.

```
Select Printer: Edit

        Filename                        HPLASEII.PRS
     1 - Name                           HP LaserJet Series II
     2 - Port                           LPT1:
     3 - Sheet Feeder                   None
     4 - Forms
     5 - Cartridges and Fonts
     6 - Initial Font                   Courier 10 pitch (PC-8)
     7 - Path for Downloadable
         Fonts and Printer
         Command Files


Selection: 0
```

22 Select Cartridges and Fonts (5) from the menu.

A Cartridges and Fonts menu is displayed on the screen that should include at least one category (e.g., Soft Fonts, Print Wheels).

```
Select Printer: Cartridges and Fonts

Font Category                   Resource                        Quantity

Cartridge Fonts                 Font Cartridge Slot             2
Soft Fonts                      Memory available for fonts      350 K




1 Select Fonts; 2 Change Quantity; N Name search: 1
```

23 Select the category to which the font definition (and character map) belong, place the cursor on the name of the new cartridge or font in the displayed list, and then type an asterisk to mark the name.

24 Press **Exit** (F7) twice to begin copying the font definition (and character map) and updating the PRS file.

Updating the PRS File

If you have edited printer commands in the PRS file, then a "Changes to the .PRS file will be lost. Continue? (Y/N) N" message appears. If you type **y** to continue, then the changes in the PRS file will be replaced by the information in the ALL file. If you type **n**, then the PRS file is not updated, and the new font is not added to the file.

For this reason, you should always make any editing changes to printer command strings in the ALL file.

If you have edited any automatic font changes (AFCs) or substitute fonts in the PRS file, then a "Do you want new Automatic Font Changes? (Y/N) No" and/or "Do you want new Substitute Fonts? (Y/N) No" message appears. If you type **y** to either question, then any changes in the PRS file are replaced by the updating done by WordPerfect. If you type **n**, then WordPerfect adds the font definition, but does not change the selections in the PRS file.

WordPerfect does not update AFCs and substitute fonts in the PRS file if they have already been marked in the ALL file. For this reason, it is important to make all your editing changes to AFCs and substitute fonts in the PRS file.

Testing the Character Map

Once the new font definition has been copied, and the updating changes made to all the fonts in the PRS file, the Edit menu is displayed on the screen again.

25 Press **Exit** (F7) twice to return to the Print menu.

26 Select Initialize Printer (7) to download all soft fonts marked with an asterisk.

You can watch the downloading progress from the Control Printer screen (Shift-F7,4). A message is displayed that indicates the current font being downloaded.

27 Press **Exit** (F7) to return to the WordPerfect document editing screen.

28 Press **Font** (Ctrl-F8), select Base Font (4), place the cursor on the name of the new font, and then press **Enter**.

If the new font is not displayed in the base font list, then it may not be defined as a high quality font. Only high quality fonts are used for formatting documents in WordPerfect.

29 Press **Retrieve** (Shift-F10), and then retrieve the CHARMAP.TST file from the Conversion diskette in your WordPerfect 5.0 package.

The file contains all the characters in each WordPerfect character set. If you have a graphics card, you may want to display the file in the View Document screen (Shift-F7,6) to see which characters have a command string in the character map (or an assigned AFC or substitute font).

However, the only way to test the character commands is to actually send the file to the printer.

30 Press **Print** (Shift-F7), and then select Full Document (1) to send the test file to the printer.

If a character does not print correctly, you may need to edit the command string for the character by using the Printer program.

Editing a Character Map

If you are having problems printing a character, it may be that the command string in the character map is incorrect or missing. By retrieving the ALL file, making the correction, and then copying the character map to the PRS file, WordPerfect can then use the new command to print the character.

1 Start the Printer program.

2 Press **Retrieve** (Shift-F10), and then retrieve the ALL file that contains the character map into the Printer program.

Displaying the Character Map

If you remember the name of the character map assigned to the font, then simply press **Character Map** (F4) to display the list of character maps and edit the incorrect character map.

However, if you are unsure or do not remember the character map name, then the character map can be displayed from the font definition.

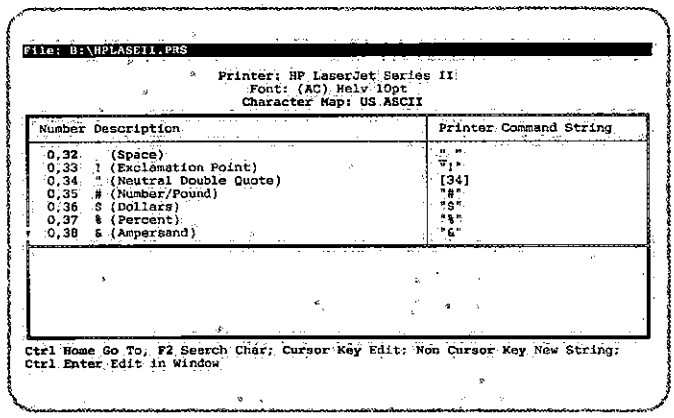
3 Place the cursor on the name of the printer which contains the font definition, and then press **Enter**.

4 Select Fonts from the Printer menu to display a list of all the font definitions created for the printer.

5 Place the cursor on the name of the font definition you want to edit, and then press **Enter** to display the Font menu.

6 Type **c** and press **Enter** to place the cursor on Character Map in the menu, and then press **Enter** again to display the list of character maps.

7 Press **Enter** to display the character map assigned to the font definition.



Entering the Command String

With the character map displayed, you are ready to enter the correct command string for the character.

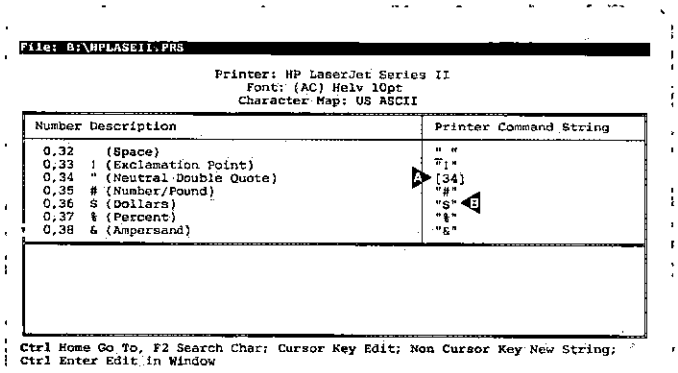
8 Scroll through the map until the cursor rests on the character that needs to be edited.

All the cursor keys are available for scrolling through the map. By pressing **Go To** (Ctrl-Home) and entering a character from the keyboard or a character set number (e.g., 3,20), you can scroll directly to the character. You may also want to use **Search** (F2) or **Search** (Shift-F2) to search for the character by typing all or part of a description listed in the table.

9 Type the command string the printer needs to print the character, and then press **Enter**.

Normally, the decimal value or the character itself is entered for the command string.

A DECIMAL VALUE
B CHARACTER



A decimal value should be entered in brackets (e.g., [34]), while the character should be entered in double quotation marks (e.g., "$"). A number entered from 1 to 255 is automatically placed in brackets. Only characters with decimal values from 32 to 126 can be entered in double quotation marks. All others should be entered as a decimal value (or binary, hexadecimal, or octal).

The values to enter for each character are listed in the printer manual, normally in a table that includes hexadecimal and decimal values for the characters in the font.

10 When you finish, press **Exit** (F7) to return to the list of character maps.

Updating the PRS File

At this point, you can update the PRS file by simply copying the character map from the ALL file to the PRS file.

11 Select Copy (4), and then enter the name of the PRS file to which the character map should be copied.

The old character map in the PRS file is automatically replaced by the corrected character map from the ALL file.

Because the same character map may be used by several fonts, you need to make sure that the editing change to a command string is valid for all the fonts assigned to the map.

Saving the ALL File

Once the character map has been copied to the PRS file, the ALL file should be saved so that the correct command string is always available whenever updating a PRS file in WordPerfect.

12 Press **Quit** (Alt-F7), type **y**, and then press **Enter** to use the same filename.

13 Type **y** to replace the ALL file on disk with the edited version, and then type **y** to exit the Printer program.

The character can be tested in WordPerfect by sending a document to the printer that contains the character.

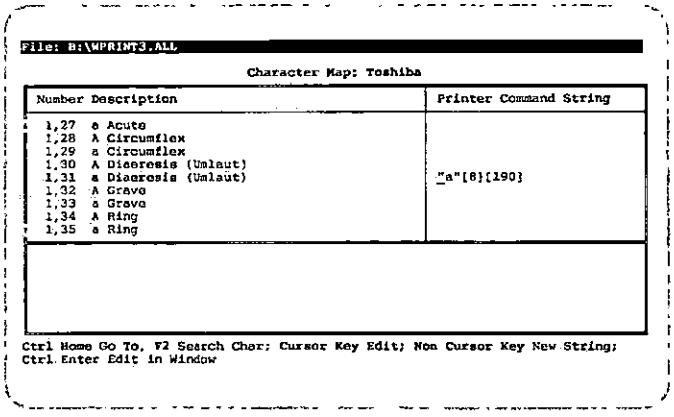
Creating a Special Character

Not all characters in a character map are included in every font. However, you can use the printer's features to create a character.

If you want to print a special character by using a character from another font in the PRS file, then select the font for an automatic font change (AFC) or as a substitute font (see Automatic Font Changes and Substitute fonts in Applications for details).

Backspace example

For example, an a umlaut (ä) could be created by printing an "a," sending a backspace command to the printer, and then printing an umlaut (¨). The command might appear as follows in the character map (depending on the printer).



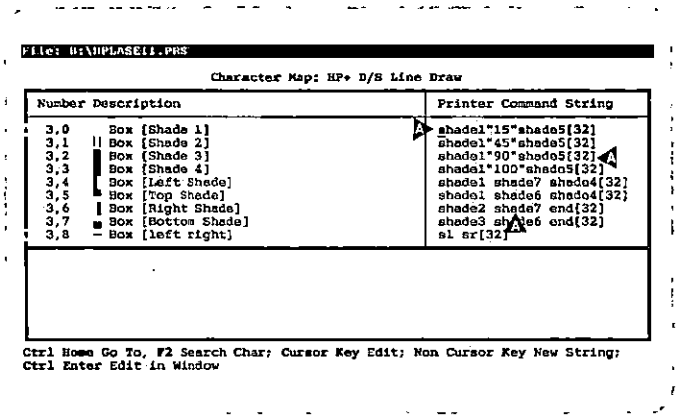
The "a" is printed, followed by a backspace command [8] to move the printhead back one character and a command to print the umlaut [190].

If a lowercase "a" and an umlaut "¨" both exist in a font, then WordPerfect tries to create an a umlaut "ä".

Variables example

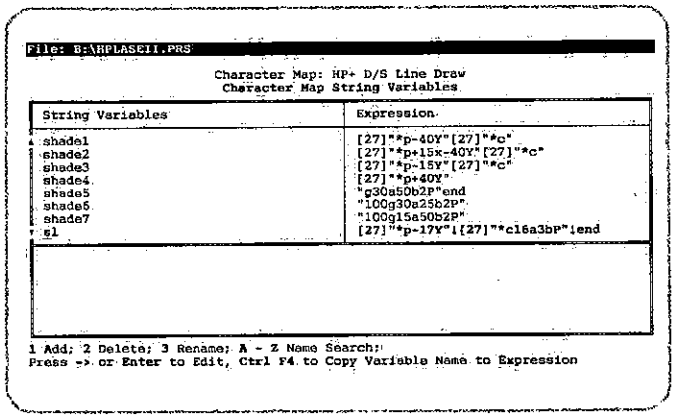
Other commands can be much more complex. For example, a special character map (HP+ D/S Line Draw) has been created (by WordPerfect Corporation) for the HP LaserJet printers that takes advantage of the HP graphics features to graphically draw the characters in the WordPerfect Box Draw character set.

A VARIABLES



Notice that several variables (e.g., shade1, shade2, end) are being used to create command strings that draw the character. These variables were created by the person who designed the character map, and can be displayed while in the map.

1 Press **String Variables** (F9) to display the variables created for the character map.



Each variable represents a long string of printer commands. By typing the variable, instead of the printer commands, into the character map, you avoid the need to remember the commands or to look them up in the printer manual.

While in the variable table, you can insert a variable into the command string in the character map.

2 Place the cursor on the variable you want inserted into the command string and press **Copy** (Ctrl-F4).

The character map is displayed on the screen with the variable inserted into the command string.

3 Press **Exit** (F7) twice to return to the list of character maps.

The string variable table is one of three (string, function, and integer) that can be displayed and edited from the character map. Press **String Variables** (F9), **Function Variables** (Shift-F9), or **Integer Variables** (Alt-F9) to display the desired table.

The variables in these tables are stored separately from those created for the printer definition. Whenever a character map is copied to another PRS or ALL file, the variables that appear in the command strings of the character map are also copied to the destination file.

Fonts

A font has been traditionally defined as a set of characters in a certain typeface and size. For example, all the letters, numbers, and punctuation marks in Helvetica at a size of 12 points could be considered a font.

Sometimes a font is simply a set of symbols for printing math formulas, scientific equations, or special marks (bullets, copyright notice, etc.). In this case, the font may be in a certain size, but can be used with any typeface.

Font Definitions

A font for a printer can come as a piece of hardware designed to be switched in and out of the printer with each font change (e.g., print wheels, print thimbles), or as electronic information stored in the printer's memory or on an external card (e.g., font cartridge, font card).

While WordPerfect Corporation does *not* create fonts for a particular printer, font definitions are provided in the ALL files that let WordPerfect use the built-in fonts in a printer, or any extra fonts you may have purchased to use with the printer.

A font definition includes information about the fonts typeface, orientation, size and spacing metrics, load and select command strings, automatic font changes, substitute fonts, and print quality. In addition, a character map and resource are assigned to each font, with a proportional spacing table assigned to proportionally-spaced fonts.

The font definitions are copied from the ALL file to the PRS file when creating or updating the PRS file in WordPerfect. If a font definition does not exist for a font, then a new definition needs to be added to the ALL file before copying it to the PRS file (see *Adding a Font* below for details).

Fonts in Memory

Fonts stored in the printer's memory can be divided into two categories: built-in and downloadable. Built-in fonts are stored in permanent memory (ROM) and are there when you purchase the printer. Built-in fonts always stay in memory, and are not cleared when the printer is turned off.

Downloadable fonts (also called soft fonts) are fonts that can be purchased separately and stored in the printer's temporary memory (RAM). As soon as the printer is turned off, the downloadable fonts are erased, and the memory is available again for downloading fonts the next time the printer is turned on.

Not all printers have RAM memory available for downloadable fonts. However, all printers that create characters with a single printhead (e.g., dot matrix, ink jet, laser) come with a set of built-in fonts that can be used to begin printing as soon as you purchase the printer.

Font Cartridges and Cards

Each font that you use with WordPerfect needs a font definition created. A font cartridge or card in the resource list is simply a group of font definitions marked as being loaded into the printer at the same time.

This section of Applications is designed to provide information about creating and managing font definitions. For details on organizing a group of font definitions (e.g., font cartridge, font card), turn to *Groups and Resources* in Applications.

Print Wheels and Thimbles

A single font definition needs to be created for each print wheel or print thimble used at the printer. Defining a print wheel/thimble is similar to defining a soft font, except that the soft font should be assigned to a Soft Fonts resource in the printer file, while the print wheel/thimble should be assigned to a Print Wheel or Print Thimble resource in the printer file.

For print wheels that contain more than one font, a font definition needs to be created for each font, and then the definitions assigned to a group (see *Groups and Resources* in Applications for details).

Displaying a Font Definition

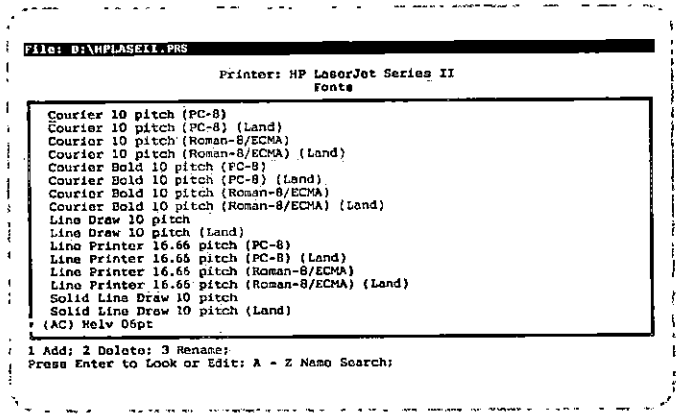
When you first receive your WordPerfect 5.0 package, there are four printer disks (one with an update package) that each contain an ALL file with information about several printers. The information is defined by WordPerfect Corporation, and includes font definitions available for each printer.

1 Start the Printer Program.

2 Press **Retrieve** (Shift-F10) and enter the name of the ALL file that contains the complete information for your printer.

3 Place the cursor on the printer name, and then press **Enter** to display the Printer menu.

4 Select Fonts from the menu to display a list of all the font definitions created for the printer.


File: D:\WP\LASER2.PRS
Printer: HP LaserJet Series II
Fonts
Courier 10 pitch (PC-8)
Courier 10 pitch (PC-8) (Land)
Courier 10 pitch (Roman-8/ECMA)
Courier 10 pitch (Roman-8/ECMA) (Land)
Courier Bold 10 pitch (PC-8)
Courier Bold 10 pitch (PC-8) (Land)
Courier Bold 10 pitch (Roman-8/ECMA)
Courier Bold 10 pitch (Roman-8/ECMA) (Land)
Line Draw 10 pitch
Line Draw 10 pitch (Land)
Line Printer 16.66 pitch (PC-8)
Line Printer 16.66 pitch (PC-8) (Land)
Line Printer 16.66 pitch (Roman-8/ECMA)
Line Printer 16.66 pitch (Roman-8/ECMA) (Land)
Solid Line Draw 10 pitch
Solid Line Draw 10 pitch (Land)
(AC) Helv 06pt
1 Add; 2 Delete; 3 Rename;
Press Enter to Look or Edit; A - Z Name Search;

The list of fonts includes the printer's built-in fonts, print wheel fonts, fonts in cartridges, downloadable fonts, etc. Each font that can be used by the printer (no matter what the source) needs to have a font definition listed in this menu, or WordPerfect cannot use the font to print a document.

The list is never completely displayed in WordPerfect. For example, when selecting fonts to create or update a PRS file, only the fonts marked as a soft font resource type are listed individually. Groups such as cartridges are listed, but not the individual font names. And the built-in font group is not listed at all, but simply copied over automatically when the PRS file is created.

Once the font definitions are copied to the PRS file, only fonts marked as High Quality in the PRS file are actually displayed when Base Font is selected from the Font menu (Ctrl-F8,4) in WordPerfect. And if the fonts are specifically designed for a particular orientation (e.g., portrait, landscape), then only the fonts valid for the current page orientation are displayed in the Base Font list.

5 Press **Quit** (Alt-F7), and then type **y** twice to exit the Printer program.

Creating a Font Definition

When selecting a printer to use with WordPerfect, all the definitions for the built-in fonts are automatically copied from the ALL file to the PRS file. You can also select definitions for cartridges, soft fonts, etc., that you may be using with the printer by marking them in the Cartridges and Fonts list displayed when editing the printer information (Shift-F7,s,3).

PRS and ALL files

If a soft font, print wheel, etc., is not listed, then it is not included in the ALL file, and a definition needs to be created for the font. If a cartridge is missing, then a font definition needs to be created for each font on the cartridge, and the font definitions assigned to a group (see *Groups and Resources* in Applications for details) before the cartridge can be listed and selected in WordPerfect.

Some fonts (e.g., Bitstream) may come with a special installation program that automatically creates a font definition for you, and then places the definition in the ALL file. For fonts from other manufacturers, you may need to create a font definition on your own.

In either case, the font definition should be added to the ALL file *first,* and then copied to the PRS file while in WordPerfect. During the copying process, WordPerfect also updates all the automatic font changes and substitute fonts in the PRS file to include the new font definition.

If you add the font definition to the PRS file (using the Printer program), then you will need to do your own updating of automatic font changes and substitute fonts using the Printer program.

Start with Evaluating Your Resources below if the font is not listed in the ALL file. If the font definition already exists, then skip to Copying the Font Definition for steps on copying the font to the PRS file.

In the case of a font cartridge or font card, a font definition needs to be created for each font on the cartridge or card, and then a group created in the ALL file for the cartridge or card (see *Groups and Resources* in Applications for details).

Evaluating Your Resources

In order to create a font definition, you need to know information such as the font's typeface, character widths, orientation, and the codes to send to the printer for printing each character in the font. Soft fonts need to have a command string entered for loading, unloading, and selecting the font. Size and spacing information is also needed for WordPerfect to print text correctly in a line.

If any of this information is not available to you, or you feel that creating a font definition is beyond your experience or resources, then you may want to call the WordPerfect's Information Services department at (801) 225-5000 to find out if a font definition has been created since you purchased your WordPerfect 5.0 package.

If a font definition is still not available, you can place a request with Information Services for the definition. The request is then sent to the PC Printer Group where all printer and font definitions are created for WordPerfect 5.0. The right to decline the request is based on the availability of the font, and the number of requests received by WordPerfect Corporation.

WordPerfect 4.2 Definitions

If you decide to create a font definition, check your WordPerfect 4.2 printer files (if you still have them) to see if a character map and proportional spacing table already exist for the font. If they are available, then you can use the Font Conversion Utility (FC.EXE) provided in your WordPerfect 5.0 package (Conversion diskette) to convert the character map and widths from version 4.2 to 5.0.

For details on using the conversion utility, turn to *WordPerfect 4.2 Printer Definitions* in Applications.

Adding the Font to the ALL File

If you have decided to create a font definition, then the definition should be created in the ALL file using the Printer program.

1. Start the Printer program.
2. Press **Retrieve** (Shift-F10) and enter the name of the ALL file.
3. Place the cursor on the name of the printer to which you will be adding the font definition, and then press **Enter**.
4. Select Fonts from the Printer menu to display a list of all the font definitions created for the printer.

If a font definition already exists that is very similar to the one you need to create, then you can select that font as a pattern for the Printer program. If you need to start from the beginning, then the Printer program adds a default (blank) font definition to the list.

5 Select Add (1) from the menu at the bottom of the screen.

6 Place the cursor on the font definition you want to use as a pattern and press **Enter**, or simply press **Ctrl-Enter** to create a default (blank) font definition.

7 Enter a name for the font definition.

The name can begin with information in parentheses that describes the font orientation and/or source. For example, "(AC)" Helv 10pt" is the name of a soft font used with the HP LaserJet printers. The "(AC)" in the name identifies the group of fonts to which it belongs. When the name is displayed in the printer file, or while marking the font in WordPerfect, the "(AC)" remains at the beginning of the name so that all fonts belonging to the group are sorted together.

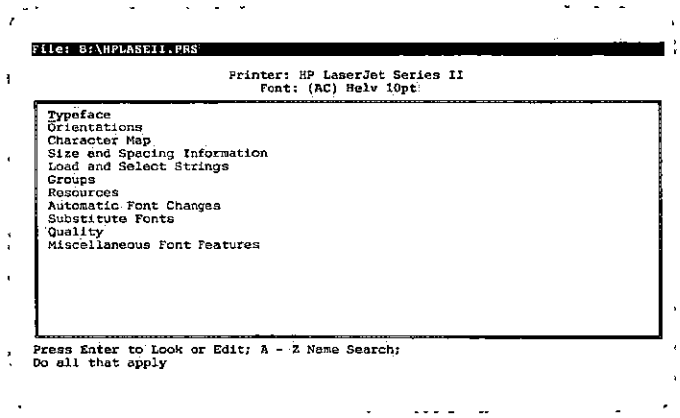
However, when the font name is displayed in the Base Font list (Ctrl-F8,4), the "(AC)" is moved to the end of the name. The font names are then sorted by the typeface (e.g., Helvetica, Times Roman), which is what the user needs when using fonts in a document.

Editing the Font Definition

After entering the font name, you are ready to begin editing and/or entering the information for the font definition.

8 Place the cursor on the name of the new font definition and press **Enter**.

A menu is displayed of all items of information that need to be filled in for the font definition.



9 Place the cursor on an item, press **Enter**, fill in the appropriate information, and then press **Exit** (F7) to return to the Font menu.

You may need to press **Enter** or **Exit** (F7) more than once to completely fill in the information and return to the Font menu. Details about each item of information can be found under *Fonts* in the Printer Definitions section of *Reference*.

10 When you finish defining the font, press **Quit** (Alt-F7), type **y** to save the ALL file, and then press **Enter** to use the same filename.

11 Type **y** to replace the ALL file, and then type **y** again to exit the Printer program.

When creating a font definition to use with WordPerfect, you should always think of a font in terms of how the manufacturer defines the font.

For example, a commonly used font with the HP LaserJet Series II is Times Roman 10 point Portrait Roman 8 Proportionally Spaced. Notice that the font as defined by the manufacturer includes a typeface (Times Roman), size (10 point), orientation (portrait), character set (Roman 8), and character widths (proportionally-spaced).

However, a font as defined by the manufacturer for a PostScript printer only includes a typeface (Helvetica), character set (PostScript fixed), and character widths. The size is selected by the user (scalable), and four orientations are available for each font by simply sending a PostScript command to the printer.

Trying to change a font definition to create a bolded, italicized, etc. font is useless unless the font is already at the printer, or you have entered an amount to slant the font (Size and Spacing Information menu) for a PostScript font. The font definition simply allows WordPerfect to use a font *as it comes from the manufacturer.* Changing the font definition does not change the characteristics of the font, but can cause problems with trying to print with the font from WordPerfect.

Copying the Font Definition to the PRS File

Once a font definition has been added to the ALL file, it can only be copied to the PRS file while in WordPerfect (no Copy option exists in the Printer program for copying fonts).

For example, Bitstream Inc. is a company which designs and provides fonts for laser printers. With the release of WordPerfect 5.0, Bitstream now provides a program that not only creates a selected font, but creates a font definition in the ALL file for the font.

All you need to do to update your PRS file is to mark the new font for copying to the PRS file.

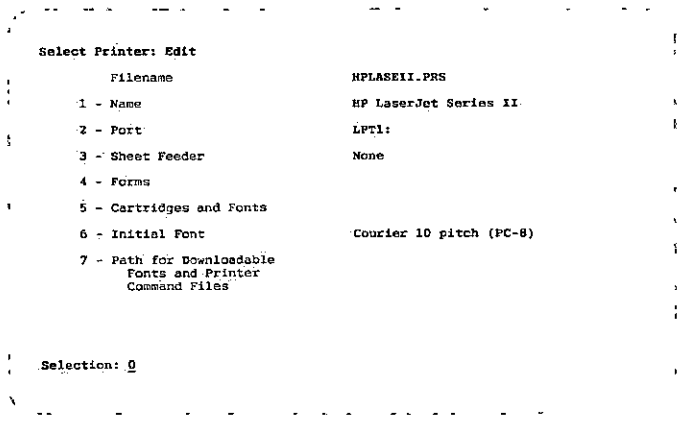
12 Make sure that the ALL file that contains the new font definition is in your WordPerfect directory.

13 Start WordPerfect.

14 Press **Print** (Shift-F7) and select Select Printer (s) from the Print menu in WordPerfect.

15 Place the cursor on the name of your printer and select Edit (3) from the menu at the bottom of the screen.

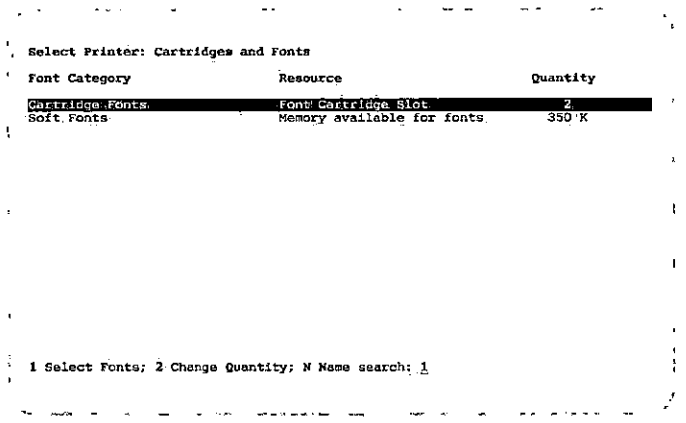
An Edit menu similar to the following is displayed on the screen.



16 Select Cartridges and Fonts (5) from the menu.

Marking the Font in WordPerfect

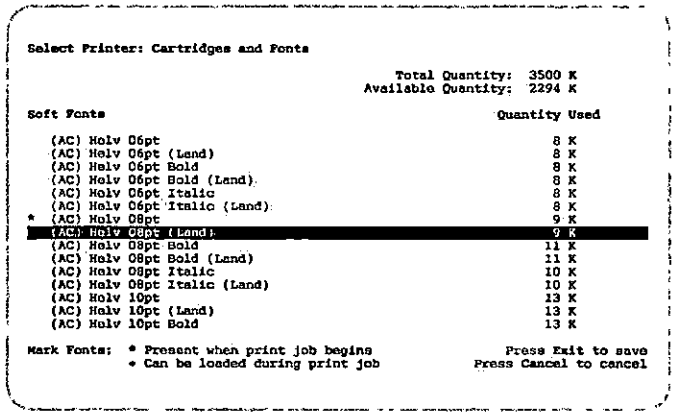
A Cartridges and Fonts menu is displayed on the screen that should include at least one category (e.g., Soft Fonts, Print Wheels).



If a Cartridge Fonts category appears on the screen, then some fonts in the ALL file have been assigned to a cartridge. If you assigned the new font definition to a cartridge group, select the Cartridge Fonts category, and then select the cartridge to which the font belongs. Otherwise,

17 Place the cursor on the category you want to update, and then press **Enter** to display a list of font definitions.

A list is displayed of all the soft font, cartridges, print wheels, etc. defined in the ALL file.


Select Printer: Cartridges and Fonts
Total Quantity: 3500 K
Available Quantity: 2294 K
Soft Fonts
Quantity Used
(AC) Helv 06pt 8 K
(AC) Helv 06pt (Land) 8 K
(AC) Helv 06pt Bold 8 K
(AC) Helv 06pt Bold (Land) 8 K
(AC) Helv 06pt Italic 8 K
(AC) Helv 06pt Italic (Land) 8 K
* (AC) Helv 08pt 9 K
(AC) Helv 08pt (Land) 9 K
(AC) Helv 08pt Bold 11 K
(AC) Helv 08pt Bold (Land) 11 K
(AC) Helv 08pt Italic 10 K
(AC) Helv 08pt Italic (Land) 10 K
(AC) Helv 10pt 13 K
(AC) Helv 10pt (Land) 13 K
(AC) Helv 10pt Bold 13 K
Mark Fonts: * Present when print job begins
+ Can be loaded during print job
Press Exit to save
Press Cancel to cancel

18 Place the cursor on the name of the font definition you want to copy to the PRS file, and then type an asterisk (*) or a plus sign (+).

For example, typing an asterisk for a soft font tells WordPerfect to load the font into the printer's memory whenever you select Initialize Printer (from the Print menu). However, during a print job, WordPerfect assumes that the font is in memory, and will *not* download the font. Once downloaded, the font remains in memory until the printer is turned off.

A plus sign for a soft font tells WordPerfect to only load the font into the printer's memory when the font is actually needed during a print job. At the end of the print job, the font is unloaded to free up memory for loading other soft fonts.

For some printers, you may be able to type both an asterisk and plus sign next to a soft font. In this case, the font is loaded when you select Initialize Printer, but can be unloaded during a print job to make room for other fonts.

Updating the PRS File

If the list of font definitions fills the screen, and the new font is not displayed, you may need to use the cursor keys to scroll down the list until the font appears.

19 When you finish marking the font, press **Exit** (F7) twice to begin copying the font definition and updating the PRS file.

If you have edited printer commands in the PRS file, then a "Changes to the .PRS file will be lost. Continue? (Y/N) N" message appears. If you type **y** to continue, then the changes in the PRS file will be replaced by the information in the ALL file. If you type **n**, then the PRS file is not updated, and the new font is not added to the file.

For this reason, you should always make any editing changes to printer command strings in the ALL file.

If you have edited any automatic font changes (AFCs) or substitute fonts in the PRS file, then a "Do you want new Automatic Font Changes? (Y/N) No" and/or "Do you want new Substitute Fonts? (Y/N) No" message appears. If you type **y** to answer either question, then any changes in the PRS file are replaced by the updating done by WordPerfect. If you type **n**, then WordPerfect adds the font definition, but does not change the selections in the PRS file.

WordPerfect does not update AFCs and substitute fonts in the PRS file if they have already been marked in the ALL file. For this reason, it is important to make all your editing changes to AFCs and substitute fonts in the PRS file.

Testing the Font

Once the new font definition has been copied, and the updating changes made to all the fonts in the PRS file, the Edit menu is displayed on the screen again.

20 Press **Exit** (F7) twice to return to the Print menu.

21 Select Initialize Printer (7) to download all soft fonts marked with an asterisk.

You can watch the downloading progress from the Control Printer screen (Shift-F7,4). A message is displayed that indicates the current font being downloaded.

After downloading is completed, the font should be displayed in the Base Font list (Ctrl-F8,4), if it is a high quality font, and you should be able to begin using the font for printing.

Some fonts are stored at the computer as files that can be loaded into the printer's memory whenever the font is needed (soft fonts). Other fonts are stored on cartridges, cards, or diskettes that can be inserted directly into the printer. Fonts such as print wheels or thimbles are mechanical devices that need to be switched in and out each time a new font is needed.

In addition, many printers (e.g., dot matrix, laser) have built-in fonts permanently installed in the printer. These fonts are always available whenever the printer is on.

For each font that you plan on using with the printer, WordPerfect needs to know the answer to two basic questions:

Is the font loaded into the printer as part of a group of fonts?

What printer resource does a font or font group use when it is loaded into the printer?

To help organize the answers to these questions, a group list and resource table are included for each printer definition in the PRS or ALL file.

Adding a Group

A group is any collection of fonts loaded at the same time into the printer. A font cartridge or font card is a good example of a group of fonts. The built-in fonts that are loaded into the printer at the factory are also considered a group.

Soft fonts are *not* considered groups because they are loaded into the printer one at a time. The only time a print wheel should be considered as a group is when more than one font is available on the print wheel.

If there is a font cartridge or font card (or other group) that is not listed when selecting cartridges or fonts in WordPerfect for your PRS file, then a group needs to be created in the ALL file using the Printer program.

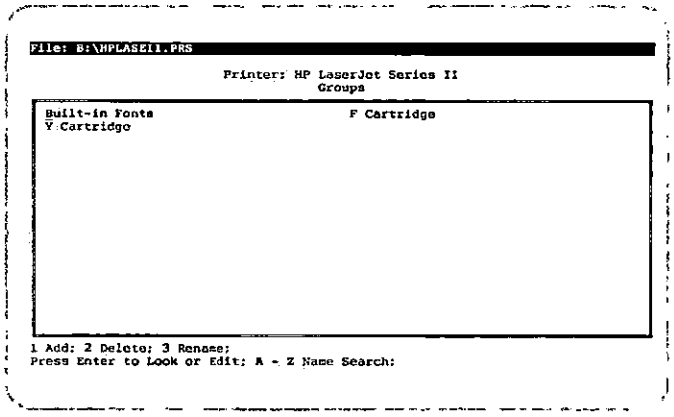
Each font in the group needs to have a font definition already created in the ALL file *before* the group can be defined (see *Fonts* in Applications for details).

1 Start the Printer Program.

2 Press **Retrieve** (Shift-F10) and enter the name of the ALL file that contains the complete information for your printer.

3 Place the cursor on the printer name, and then press **Enter** to display the Printer menu.

4 Select Groups from the menu to display a list of all the groups currently defined for the printer.



Adding a Group to the ALL file

Printers with built-in fonts have at least a Built-in Fonts group listed. Other printers may have several cartridges or font cards.

5 Select Add (1) to add a group to the list.

If a group already exists that is very similar to the one you need to create, then you may want to select that group as a pattern for the Printer program to copy when adding the new group to the list. If you want to start with an empty group, then the Printer program adds a default group to the list.

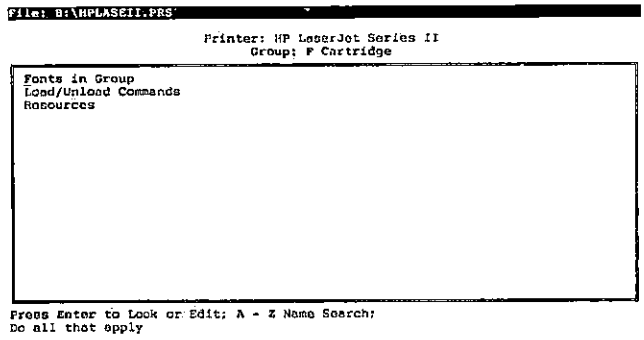
6 Press **Ctrl-Enter** to create a default group, or place the cursor on an existing group and press **Enter** to use the group as a pattern.

7 Enter a name for the group (e.g., F Cartridge).

Marking Fonts for the Group

You are now ready to mark the fonts in the group, enter any commands needed to load/unload the group, and mark the printer resource that the group uses.

8 Place the cursor on the name of the new group, and then press **Enter** to display the Group menu.



The first task that needs to be accomplished is to mark all the fonts that belong to the group (i.e., all the fonts on the font cartridge or card).

9 Select Fonts in Group from the Group menu to display a list of all the fonts in the printer definition.

10 Type an asterisk (*) next to each font in the group (press **Backspace** to clear an asterisk).

If the fonts in the group are not listed, then a definition needs to be created for each font before the group can be defined (see Fonts in Applications for details).

11 When you finish marking fonts, press **Exit** (F7) to return to the Group menu.

Entering Load and Unload Strings

Groups such as font cartridges normally do not need load and unload commands entered, and so you do not need to select Load/Unload Commands.

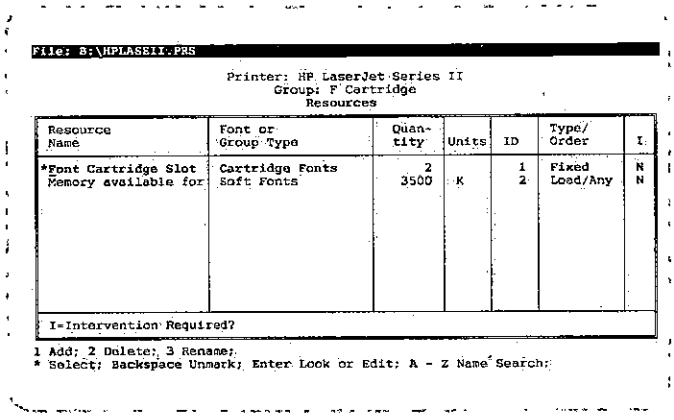
However, if the cartridge is swappable during a print job (and is marked as such in the resource table), you may want to enter a load command such as **prompt ("Put Swiss Portrait cartridge in slot B") beep wait clearprompt** to have WordPerfect display the indicated prompt in the Control Printer menu, beep, and then wait for you to insert the cartridge and send a "Go" to continue the print job.

You may also want to enter a command that sends a message to the printer when the cartridge is unloaded.

Marking a Resource

The final step in creating a group is to mark the printer resource that the group uses, and then enter the quantity used.

12 Select Resources to display a table of defined resources for the printer.



If the printer definition has been set up correctly, then all you need to do is mark the correct resource in the list. For example, the Font Cartridge Slot resource would be marked for a font cartridge group.

If a resource does not exist for the group, then turn to Resources in the Printer section of Reference for details on adding a resource.

13 Mark the appropriate printer resource by placing the cursor on the resource name and typing an asterisk (*).

14 Press **Enter** to display a list of the groups that use the resource, and then place the cursor on the group name.

15 If the quantity of the resource used by the group (e.g., 1 font cartridge slot) is correct, press **Exit** (F7) to return to the resources table. Otherwise, press **Right Arrow** (→), type the correct quantity, and then press **Exit** (F7) twice to return to the resources table.

By assigning a group to a resource, the group is then displayed in WordPerfect when selecting cartridges and fonts for creating or updating a PRS file. If a resource is *not* marked, then the group cannot be selected while in WordPerfect.

16 Press **Exit** (F7) to return to the Group menu.

Copying the Group to the PRS File

Now that the group is created and marked for a resource, the group needs to be copied into the PRS file in WordPerfect.

17 Press **Quit** (Alt-F7), type **y** to save the ALL file, and then press **Enter** to use the same filename.

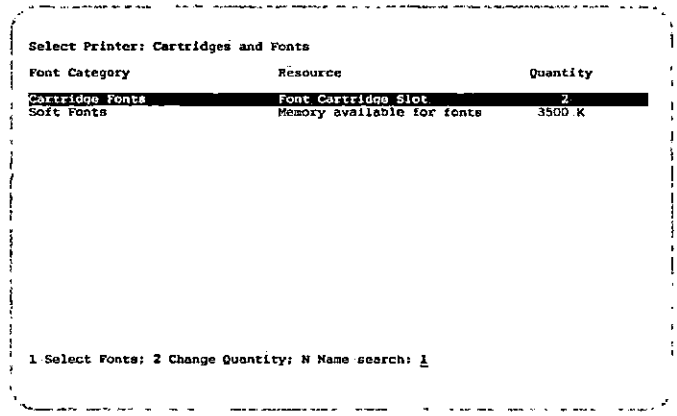
18 Type **y** to replace the ALL file, and then type **y** again to exit the Printer program.

19 Start WordPerfect.

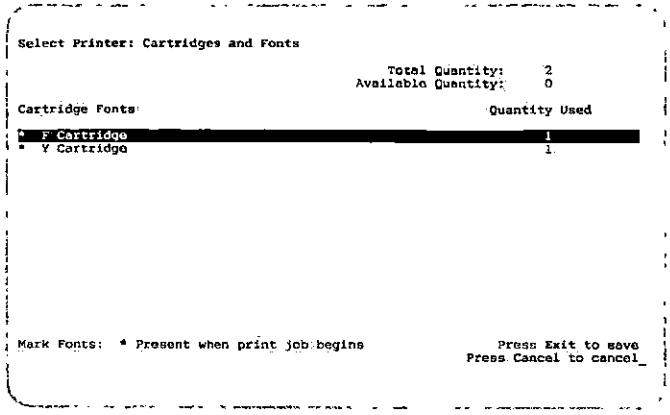
20 Press **Print** (Shift-F7), and then select Select Printer (s).

21 Place the cursor on the name of the printer to which you want to add the group, and then select Edit (3) from the menu at the bottom of the screen.

22 Select Cartridges and Fonts (5) from the Edit menu to display a list of resources in the ALL file.



23 Select the resource to which the group is assigned (e.g., Cartridge Fonts) to display a list of all the groups assigned to the resource.



Marking the Group in WordPerfect

Any groups in the ALL file that are not assigned to the resource will not appear in this list.

24 Place the cursor on the group you want to add to the PRS file, and then mark the group with an asterisk (*) or plus sign (+).

You should not mark more groups (e.g., cartridges) than allowed by the resource quantity (cartridge font slots) with an asterisk. The total quantity available at the printer is displayed at the top of the group list, with an updated count of the quantity still available. You may need to clear the mark from another group before marking the group you want to add to the PRS file.

If a plus sign (+) is available at the bottom of the list, then you can mark as many groups as you want to use with the plus sign. The plus sign indicates that the group can be swapped in and out of the resource during a print job. The asterisk indicates that the resource is there at the beginning of the print job.

For example, only an asterisk can be used to mark cartridges for the HP LaserJet Series II, as cartridges cannot be swapped in and out of the cartridge slots during a print job. However, soft fonts for the same printer can be marked with an asterisk and/or a plus sign, as the soft fonts can be swapped in and out of memory during a print job.

Updating the PRS File

25 When you finish, press **Exit** (F7) twice to begin updating the PRS file.

If you have edited printer commands in the PRS file, then a "Changes to the .PRS file will be lost. Continue? (Y/N) N" message appears. If you type **y** to continue, then the changes in the PRS file will be replaced by the information in the ALL file. If you type **n**, then the PRS file is not updated, and the new font is not added to the file.

For this reason, you should always make any editing changes to printer command strings in the ALL file.

If you have edited any automatic font changes (AFCs) or substitute fonts in the PRS file, then a "Do you want new Automatic Font Changes? (Y/N) No" and/or "Do you want new Substitute Fonts? (Y/N) No" message appears. If you type **y** to answer either question, then any changes in the PRS file are replaced by the updating done by WordPerfect. If you type **n**, then WordPerfect adds the font definition, but does not change the selections in the PRS file.

26 When the updating is completed, press **Exit** (F7) to return to the Select Printer menu.

27 Place the cursor on the name of the printer you edited, and then press **Enter** to select the printer.

28 Press **Exit** (F7) to exit the Print menu and return to the WordPerfect document editing screen.

Checking the Base Font List

All the fonts in the selected group have now been copied to the PRS file. You can check to see if the high quality fonts were copied by displaying the base font list for the printer.

29 Press **Font** (Ctrl-F8) and select Base Font (4) to display a list of all the base fonts in the PRS file.

If the updating was successful, then the fonts should be displayed in the list. Remember, however, that only fonts marked as High Quality in the font definition will be displayed as base fonts.

30 Press **Exit** (F7) to return to the document editing screen.

Editing the Resource Table

For each printer definition in the ALL file, a resource table is created that indicates the printer resources available for adding fonts to the printer. A resource can be memory in the printer for soft fonts, font cartridge slots, a slot for a font card, or even the head on which a print wheel is mounted.

All fonts for a printer (except built-in fonts) need to be assigned to a resource, or they cannot be selected from the ALL file when creating or updating a PRS file in WordPerfect. If a font is assigned to a group (e.g., font cartridge), then the group needs to be assigned to a resource before it can be selected from WordPerfect.

Changing the Resource Quantity

When a printer definition is created at WordPerfect Corporation for an ALL file, a resource table is created that includes all the available resource options for the printer. The table is then copied to the PRS file where it is available for assigning new fonts or groups to the resource.

Normally, a resource does not need to be added to the table. However, the quantity of a resource may need to be changed when the printer is upgraded.

For example, the memory in an HP LaserJet Series II can be upgraded from 512K to 1, 2, or even 4 megabytes of memory by adding a memory card to the printer. Because there is no way of knowing if an individual's printer has more than the standard 512K, the resource table included in the WordPerfect 5.0 package is defined for 512K of memory.

If you do upgrade a resource such as memory, you can quickly update the quantity of the resource by using the Edit menu in WordPerfect. Resources such as a single head on a daisy wheel printer cannot be upgraded, so the quantity (1) should always remain the same.

1. Start WordPerfect.
2. Press **Print** (Shift-F7) and select Select Printer (s) to display the list of printers currently being used.
3. Place the cursor on the printer that you want to edit, and then select Edit (3).
4. Select Cartridges and Fonts (5) from the Edit menu to display the list of resources for the printer.
5. Place the cursor on the resource you want to edit, and then select Change Quantity (2).
6. Enter the new quantity for the resource.

For example, if you have added a 2 megabyte card to your HP LaserJet Series II, you may want to change the quantity to 1500K for loading soft fonts. The extra 500K (plus the original 512K) can then be used by the printer for accumulating data to print each page in the document (especially important when printing graphics figures).

7. Press **Exit** (F7) three times to return to the WordPerfect document editing screen.

The edited quantity is updated in the PRS file, but remains unchanged in the ALL file. It is a good idea to leave the quantity unedited in the ALL file, as the ALL file may be used to create other PRS files for printers that may not have the same quantity for the resource.

However, if you plan on updating your PRS file, you may want to make the change to the resource table in the ALL file so that the correct quantity is copied to the PRS file during updating.

Editing the Resource Table in the ALL file

If you need to edit more than just the quantity for a resource, then you need to use the Printer program to edit the resource table in the ALL file.

1 Start the Printer Program.

2 Press **Retrieve** (Shift-F10) and enter the name of the ALL file that contains the complete information for your printer.

3 Place the cursor on the printer name, and then press **Enter** to display the Printer menu.

4 Select Resources from the menu to display the resource table.

Resources can be added to the table, deleted, or renamed (see *Resources* in the Printer section of *Reference* for details). If you want to edit a resource,

5 Place the cursor on the resource you want to edit, and then press **Right Arrow** (→) until the cursor is on the item you want to edit.

6 Follow the instructions at the bottom of the table for editing the item information.

For details on editing each item in the resource table, turn to *Resources* in the Printer section of *Reference*.

7 When you finish, press **Quit** (Alt-F7) and type **y** to save the file.

8 Press **Enter** and type **y** to replace the file on disk, and then type **y** to exit the Printer program.

Updating the Resource Table in the PRS file

After editing the ALL file, the resource table can be updated in the PRS file by using Update on the Select Printer menu in WordPerfect.

9 Start WordPerfect.

10 Press **Print** (Shift-F7), and then select Select Printer (s).

11 Place the cursor on the printer you want to update, and then select Update (7) from the menu at the bottom of the screen.

If you have edited printer commands in the PRS file, then a "Changes to the .PRS file will be lost. Continue? (Y/N) N" message appears. If you type **y** to continue, then the changes in the PRS file will be replaced by the information in the ALL file. If you type **n**, then the PRS file is not updated, and the new font is not added to the file.

For this reason, you should always make any editing changes to printer command strings in the ALL file.

If you have edited any automatic font changes (AFCs) or substitute fonts in the PRS file, then a "Do you want new Automatic Font Changes? (Y/N) No" and/or "Do you want new Substitute Fonts? (Y/N) No" message appears. If you type **y** to answer either question, then any changes in the PRS file are replaced by the updating done by WordPerfect. If you type **n**, then WordPerfect adds the font definition, but does not change the selections in the PRS file.

12 When the updating is completed, press **Exit** (F7) to display the Edit menu for the printer.

13 Press **Exit** (F7) three times to return to the WordPerfect document editing screen.

Updating Built-in Fonts

If a printer has a large group of built-in fonts (e.g., over 50), then every time a PRS file is updated in WordPerfect, all of the built-in fonts in the group are also updated and assigned new AFCs and substitute fonts. Because of the quantity of built-in fonts involved, updating can take quite a while.

If you only use a few of the fonts, and you want to save a lot of updating time, then you can delete the built-in group created by WordPerfect Corporation from the groups list, and then create a resource called "Built-In Fonts."

The quantity defined for the built-in fonts resource should equal the number of built-in fonts at the printer. The type/order of loading and unloading fonts should be marked as Swap/Any.

Once the resource is created, go to each built-in font listed in the ALL file and select Built-In Fonts as a resource for each of the fonts. When you finish, save the file and exit the Printer program.

In WordPerfect, select Cartridges and Fonts from the Edit menu for the printer (Shift-F7,s,3,5), and then select the Built-In Fonts resource listed to display all the built-in fonts. Mark with an asterisk (*) only those built-in fonts you want to use with WordPerfect, and then press **Exit** (F7) three times to begin updating the PRS file. Only those built-in fonts that are marked are actually updated with new AFCs and substitute fonts.

Now, any time you update the PRS file from the ALL file, only those built-in fonts marked will be updated. By marking or unmarking built-in fonts in WordPerfect, you can adjust the fonts available for printing.

Kerning

Each character in a font is assigned a particular width. The width often includes extra space to the left and/or right of the character. When the character is printed next to other characters in a word, the extra spacing can often be too much.

For example, an uppercase "W" is wide at the top, but narrow at the bottom. When a lowercase "o" is printed next to the "W," there is extra space between the characters that is not needed.

Kerning is the design technique used by typographers and printers to reduce the spacing between two printed letters. For example, notice the reduced space between the character pairs "Wo" and "rd" for the word "WordPerfect" when kerning is used.

WordPerfect (unkerned)
WordPerfect (kerned)

Not only does kerning allow more characters to be printed in a line (by reducing the extra space), but kerned words are often more legible and look more pleasant on the page.

WordPerfect provides two methods of kerning pairs of characters: manual and automatic.

Manual Kerning

Manual kerning refers to kerning a pair of characters only *once* in a document, and is often used for creating logos, titles, and other text that requires a special design.

The Advance Left feature in WordPerfect can be used to do manual kerning while typing a document in the document editing screen.

1. Type **W** for the first character.
2. Press **Format** (Shift-F8), select Other (4), and then select Advance (1).
3. Select Left (4), and then enter **.02"** to move to the left 2/100ths of an inch.

4 Press **Exit** (F7) to return to the document editing screen.

5 Type **o** for the second character.

The two characters are now kerned 2/100ths of an inch.

6 Press **Enter** to start a new line, and then type **Wo** to insert the same pair of characters unkerned.

7 Press **Print** (Shift-F7) and then select Full Document (1) to send the two pairs of characters to the printer.

After the characters are printed, compare the first pair to the second pair. For fonts with a size of about 11 points, 2/100ths of an inch is often a good kerning value for the "Wo" character pair. However, with larger or smaller fonts, the kerning value will need to be adjusted (i.e., for smaller fonts, reduce the Left Advance measurement).

Automatic Kerning

Automatic kerning refers to WordPerfect automatically kerning the same pair of characters in a font whenever the pair appears in a document. WordPerfect gets the kerning values for a font from a table in the PRS file (see *Kerning Tables* below for details). Automatic kerning is often done for the main text of a document.

1 Place the cursor in the document where you want automatic kerning to begin (usually at the beginning of the document).

2 Press **Format** (Shift-F8), select Other (4), and then select Printer Functions (6).

3 Select Kerning (1), type **y** for "Yes," and then press **Exit** (F7) to return to the document.

A code is placed in your document that tells WordPerfect to begin using kerning values listed in the PRS file. Only character pairs assigned a kerning value are kerned when the document is printed.

WordPerfect 5.0 packages shipped after July 27, 1988 include a KERN.TST file on the Conversion diskette. The file contains a set of commonly kerned character pairs. By printing the file, you can determine if a kerning table has been defined for your font.

When you want to turn automatic kerning off in a document, place the cursor at the location in the document where you want kerning to stop, and then follow steps 1 through 3 above (typing **n** for No to turn off kerning).

Kerning values are not currently entered for many printer definitions in the WordPerfect 5.0 package. If automatic kerning is not working, then check the kerning table in the PRS file to see if any values have been entered.

Kerning Tables

For the automatic kerning feature to work correctly in WordPerfect, kerning values need to be listed in the printer's PRS file. The values are entered in a kerning table that is assigned to the font's proportional spacing table.

Only proportionally-spaced fonts can be automatically kerned in WordPerfect. Mono-spaced fonts (fixed pitch) have the same width assigned to each character, and are not designed to be kerned.

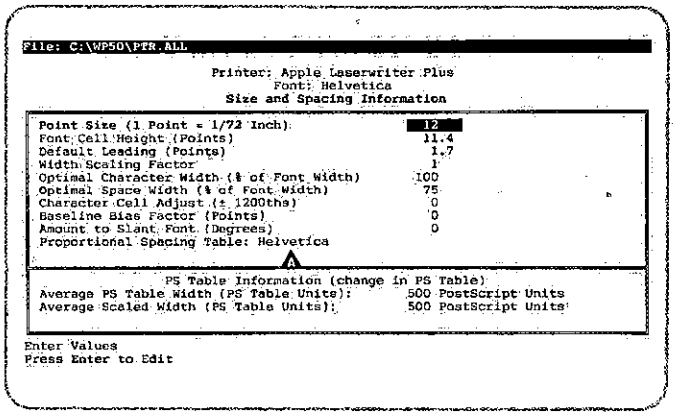
Displaying the Kerning Table

You can display the kerning table for a font by retrieving the PRS file into the Printer program.

1. Start the Printer program.
2. Press **Retrieve** (Shift-F10), and then enter the name of the PRS file for your printer.
3. Place the cursor on the name of your printer, and then press **Enter** to display the Printer menu.
4. Select Fonts from the Printer menu to display a list of fonts in file.
5. Place the cursor on the name of the font for which you want to display the kerning table and press **Enter**.
6. Select Size and Spacing Information from the Font menu.

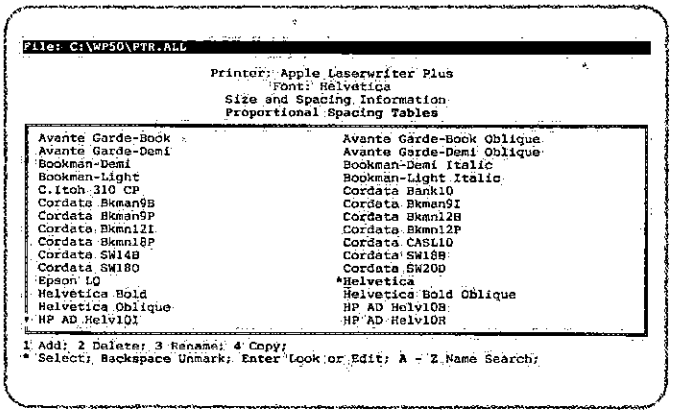
A menu is displayed that includes the name of the proportional spacing table assigned to the font.

▲ PROPORTIONAL SPACING TABLE NAME


File: C:\WP50\PTR.ALL
Printer: Apple Laserwriter Plus
Font: Helvetica
Size and Spacing Information
Point Size (1 Point = 1/72 Inch) 12
Font Cell Height (Points) 11.4
Default Leading (Points) 1.7
Width Scaling Factor 1
Optimal Character Width (% of Font Width) 100
Optimal Space Width (% of Font Width) 75
Character Cell Adjust (± 1200ths) 0
Baseline Bias Factor (Points) 0
Amount to Slant Font (Degrees) 0
Proportional Spacing Table: Helvetica
PS Table Information (change in PS Table)
Average PS Table Width (PS Table Units): 500 PostScript Units
Average Scaled Width (PS Table Units): 500 PostScript Units
Enter Values
Press Enter to Edit

7 Press **Page Down** (PgDn) to move the cursor to the name of the proportional spacing table, and then press **Enter**.

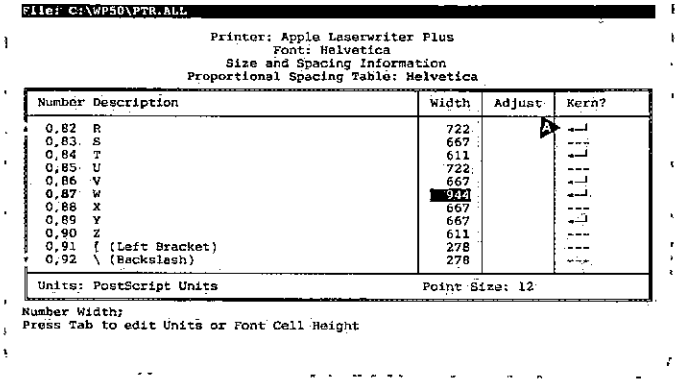
A list of all the Proportional Spacing tables in the file is displayed on the screen.



8 Press **Enter** to display the proportional spacing table selected for the font.

The proportional spacing table includes a column for the width of the character, a column that lets you adjust the character within the cell, and then a third column labeled "Kern?". Scroll through the list with the cursor keys until you see a bent arrow (↵) in the Kern column.

A BENT ARROW

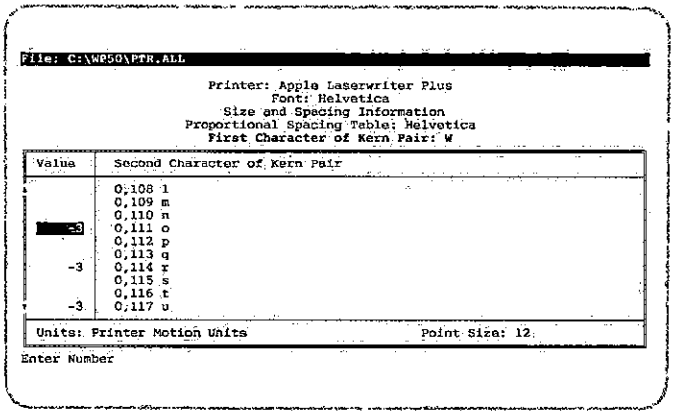


A bent arrow indicates that there are kerning values entered for the proportionally spaced character. If there are no bent arrows, then you need to enter your own kerning values for the characters in the font.

The characters listed in the proportional-spacing table represent the first character in the kerning pair. A bent arrow in the Kern column indicates that other characters have been kerned to the character in the proportional spacing table.

9 Place the cursor on the first character of a pair of characters that you want to kern.

10 Press **Right Arrow** (→) twice to place the cursor in the Kern column, and then press **Enter** to display the kerning table for the character.



Entering a Kerning Value

The first character in the kerning pair is displayed immediately above the kerning table. The characters in the table represent the second character in the kerning pair.

Notice that all the characters in all the WordPerfect character sets are available for kerning to the first character in the pair. By scrolling to a character in the kerning table and entering a value, that character and the first character are automatically kerned when the Kerning feature is on in WordPerfect.

11 Place the cursor on the character you want to kern (the second character in the pair).

You can scroll through the table by using the arrow keys, **Screen Down/Up** (+/- on the num pad), **Page Down/Up** (PgDn/PgUp), **Go To** (Ctrl-Home), or by searching for the character by name with a search key (F2 or Shift-F2).

12 Enter the kerning value (press **Backspace** or **Del** to remove a value).

A negative number moves the second character to the left, decreasing the space between the characters. The positive number moves the second character to the right, increasing the space between the characters. Normally, you will enter a negative number to kern the characters closer together.

The kerning value should be entered based on the horizontal spacing units entered in the Size and Spacing Information menu. For example, the horizontal spacing units for the HP LaserJet Series II are in 300ths of an inch (1/300), so entering **-3** would move the second character 3/300ths of an inch (or 1/100th) to the left.

The printer motion units for PostScript printers are always in 1200ths of an inch, so entering **-12** would move the second character 12/1200ths of an inch (or 1/100th) for the point size indicated at the bottom of the PS table. As you request other point sizes for the font, the distance of the movement is scaled in proportion to the new size (i.e., more space for larger fonts, less space for smaller fonts).

13 Press **Exit** (F7) to return to the proportional spacing table.

A bent arrow (↩) is displayed in the Kern column, indicating that a kerning value has been entered.

14 Press **Quit** (Alt-F7), type **y** to save the PRS file, and then press **Enter** to use the same filename.

15 Type **y** to replace the PRS file, and then type **y** again to exit the Printer program.

Testing the Kerning Value

In order to test the kerning value, you need to return to WordPerfect, create (or retrieve) a document with the pair of kerned characters, turn the Kerning feature on (see *Automatic Kerning* above for details), and then send the document to the printer.

You may want to create a special file that has two sets of all the kerning pairs you want to edit or test. Leave the first set unkerned, and then turn on kerning for the second set of characters.

WordPerfect 5.0 packages shipped after July 27, 1988 include a KERN.TST file on the Conversion diskette. The file contains a set of commonly kerned character pairs. By printing the file, you can determine if a kerning table has been defined for your font.

Kerning Helps and Hints

Kerning values for a font are usually not shipped with the fonts, but can be requested from the manufacturer. Before entering your own values, try contacting the manufacturer for the kerning values. It will save you hours of testing and experimenting.

You may also want to check with WordPerfect's Information Services department (801) 225-5000 to find out if kerning values have recently been defined for your font by the PC Printer group.

While only the kerning values in the PRS file are actually used by WordPerfect for automatic kerning, you should enter them in the ALL file and then copy them to the PRS file by selecting Update (7) on the Select Printer menu (Shift-F7,s) in WordPerfect. If they are not stored in the ALL file, then they will be replaced by the values in the ALL file (if any) when updating the PRS file.

Motion and Spacing

The way WordPerfect 5.0 handles printing features depends upon the information in the printer's PRS file. This is especially true of printhead movement and spacing between lines and characters.

The decisions made at WordPerfect Corporation about how the printhead should move and spacing should be done is based on the capabilities of the printer, the features that can be supported in WordPerfect, and what is best for the majority of WordPerfect users.

These decisions then become part of the ALL file information that is copied to the PRS file created for your printer. If you want to change the information for your printer, you should follow these basic steps:

1. Retrieve the ALL file into the Printer program.
2. Make the necessary changes.
3. Save the changes and exit the Printer program.
4. Update the PRS file from the ALL file while in WordPerfect.

If you have questions about how to complete a step, turn to *Overview* for details on editing and updating ALL and PRS files.

Bi-directional Printing

Bi-directional printing simply means that the printhead can print in both directions (left-to-right and right-to-left). After printing one line in a left-to-right direction, the printhead does not return to the left margin, but prints the next line right-to-left.

While bi-directional printing is quicker and smoother than uni-directional printing, some printers cannot print graphics in a bi-directional mode. Because most people want to print graphics with WordPerfect 5.0, WordPerfect Corporation sends out printer definitions for these bi-directional printers with the bi-directional mode turned off.

If you want to turn the bi-directional mode on again for each print job, retrieve the ALL file for the printer into the Printer program and follow these steps.

1. Place the cursor on the name of your printer, and then press **Enter** to display the Printer menu.

2 Select Initialize and Reset from the top of the menu.

3 Place the cursor on Initialize at Start of Print Job, and then press **Ctrl-Enter** to place the command string into the editing window.

4 Place the cursor at the end of the command string, and then type in the printer code for turning on bi-directional printing.

5 When you finish, press **Exit** (F7) to return to the menu, place the cursor on Reset at End of Print Job, and then press **Ctrl-Enter** to place the command string into the editing window.

6 Place the cursor at the end of the command string, and then type in the printer code for turning off bi-directional printing.

7 Press **Exit** (F7) twice to return to the Printer menu.

Save the ALL file, and then update the PRS file from the ALL file by using Update (7) on the Select Printer menu (Shift-F7,s).

Every document sent to the printer will be printed bi-directionally. However, you probably will not be able to print graphics figures.

Line Spacing

WordPerfect 4.2 offered two vertical line spacing settings—6 lpi (lines per inch) or 8 lpi. These settings worked well with a few common fixed pitch fonts (e.g., Courier 10 pitch), but were inadequate for most other fonts.

WordPerfect is designed to use the font's own height so that text is always printed the way the manufacturer intended. Whether a font is 12 points or 36 points high, the vertical spacing is always correct for the font. In addition, a point or two (72 points = 1 inch) of leading (extra vertical space) is added by WordPerfect to the font height to provide extra spacing between lines.

If you want to adjust the line height so that you still get 6 or 8 lines per inch, use Line Height (4) on the Line Format menu (Shift-F8,1). Select Fixed (2), and then adjust the displayed line height. The displayed line height is the auto line height, and includes the font height plus leading that is in your printer's PRS file.

You can also use Line Spacing (6) on the Line Format menu (Shift-F8,1) to enter a number that adjusts the line spacing. WordPerfect multiplies the line spacing number by the current line height to increase or decrease the line spacing.

If you want to permanently set the font for 6 or 8 lines per inch, you may be able to do it by adjusting the leading value in the ALL file. Retrieve the ALL file into the Printer program, and then follow these steps.

1. Place the cursor on the name of your printer, and then press **Enter** to display the Printer menu.
2. Select Fonts from the Printer menu to display a list of all the fonts in the file.
3. Place the cursor on the name of the font you want to adjust, and then press **Enter** to display the Font menu.
4. Select Size and Spacing Information from the Font menu.
5. Place the cursor on Default Leading (Points) and then enter less leading to decrease the line height, or more leading to increase the line height.

You may need to enter a value less than a point (e.g., .6) or a value of zero (0) to decrease the line height. For a printer to do 6 lines per inch, the Font Cell Height and the Default Leading values in the menu should equal 12 points (9 points for 8 lines per inch). For example, if the font cell height is 11 points and the leading is 1 point, then a total of 12 points (1/6th of an inch) gives you 6 lpi.

The font cell height is a fixed amount that is part of the font, and should not be changed to try and achieve six or eight lines per inch.

When you finish, use **Quit** (Alt-F7) to save the ALL file. You can then retrieve the PRS file into the Printer program and make the same adjustment, or simply let WordPerfect update the PRS file by using Update (7) on the Select Printer menu (Shift-F7,s).

Remember that the default leading should be changed for each font that you want to print in 6 or 8 lpi.

Text Quality

Sometimes you may print a document from WordPerfect, and the spacing between letters and words is uneven, with some letters even overlapping. While there can be several reasons for this happening, one of the most common is that you are printing the text in medium or draft quality.

Each font defined in your PRS file is marked as being a high quality, medium quality, or draft quality font. Only those fonts marked as high quality appear in the Base Font list, even though you may have copied other fonts into the PRS file.

The reason why only high quality fonts can be used in a document is that WordPerfect is only set to format documents using high quality fonts. If the text quality on the Print menu (Shift-F7) is set to high, then WordPerfect prints the document exactly as it is formatted.

However, as soon as you select Medium or Draft quality, WordPerfect immediately begins searching through the PRS file for a medium or draft font to use that is as close to the high quality font as possible. When the font is found, then WordPerfect prints the document using the medium or draft quality font, but uses the document format of the high quality font.

This disparity can cause spacing in a line to be extremely inaccurate, especially if the high quality font is proportionally-spaced, but the medium or draft font is in fixed pitch.

If you want to redefine the quality of the fonts you are using, then retrieve the ALL file, select the printer, and then select Quality from the Font menu. A menu is displayed that lets you mark one or all of the listed qualities. Before attempting to redefine a font's quality, you may want to find out more about text quality by turning to *Text Quality* under *Fonts* in the Printer section of *Reference*.

Once the changes have been made to the ALL file, you should then update the PRS file by using Update (7) on the Select Printer menu (Shift-F7,s) in WordPerfect.

On some printers, such as the HP LaserJet Series II, all text is printed in the same resolution, so each font is marked as High, Medium, and Low quality. Then, no matter what quality you select, the document is always printed with the correct fonts.

Printers

Whenever you send a document to the printer, WordPerfect needs to translate that document into commands that the printer can understand. WordPerfect looks for the commands in your printer's PRS file. The PRS file is created from an ALL file when selecting a printer during WordPerfect installation. The ALL file is shipped in your WordPerfect 5.0 package, and contains the commands for several printers.

The set of commands for a printer is often called the printer definition or driver. Because there are so many printers to support, it is difficult to create a printer definition for every printer that exists. This is especially true if the company that originally manufactured the printer has gone out of business, or no longer supports that printer.

Printer definitions are created and edited at WordPerfect Corporation using the Printer Definition (or Printer) program. This program is sent out with the WordPerfect 5.0 package in case someone needs to change the commands in the definition, or might want to create a new definition for a printer.

Printer Availability

It is a policy at WordPerfect Corporation that a definition can only be created for a printer if the printer is actually available at the company for testing. Once the printer leaves the company, the printer can no longer be supported. For this reason, many printer companies give or permanently loan a printer to WordPerfect Corporation so that the printer will always be supported.

If you decide to edit or create a printer definition with the Printer program, then it is also recommended that you have the printer available for testing, or the printer definition may not work correctly. Even though the command you enter into the printer definition may be exactly what is listed in the printer's technical manual, the command may be wrong, the explanation of the command misleading, or the command may not work in certain modes (e.g., letter quality, graphics). Only by testing the printer will you know if the printer recognizes the command.

Printer Definition Availability

WordPerfect has developed a PC Printer group at corporate headquarters whose primary purpose is to create new printer definitions and maintain ones that are currently available. It is an enormous task, as a single printer definition may take hundreds of hours to complete (including all fonts and cartridges available for the printer).

For that reason, not all printers currently have a definition available from WordPerfect Corporation. And, of the hundreds of printer definitions, there is only room in the WordPerfect 5.0 package to send definitions for some of the most requested and most commonly-used printers.

Requesting a Printer Definition

If your printer is not listed in an ALL file when installing WordPerfect, you can write to the following address to request a printer definition for your printer.

Printer Diskette
81 N. State Street
Orem, Utah 84057

This information is included in the Installation section of the WordPerfect 5.0 manual.

Another alternative is to call Information Services (801) 255-5000 at WordPerfect Corporation and find out if a printer definition for your printer has been recently completed, or is currently being created. While you can place a request for a printer definition, the right to decline the request is based on the availability of the printer and the number of requests received by WordPerfect Corporation.

Evaluating the Alternatives

If a printer definition does not exist for your printer, then you may want to create one by using an existing printer definition as a pattern (e.g., STANDARD.PRS for Standard Printer), or by creating an entirely new printer definition.

If you feel that creating a printer definition is beyond your experience or resources, then it would be wise not to attempt creating your own definition. If you feel that you might want to try creating a definition, ask yourself the following questions:

Would I feel comfortable using the Macro Programming Commands in WordPerfect?

Do I have the printer available for testing?

Do I have the printer's technical reference manual that includes all the commands for the printer?

Do I have all the available information for any fonts or cartridges purchased?

Do I know the difference between Hexadecimal and Decimal codes?

Am I willing to spend at least 30 hours creating and testing the printer definition?

If you have answered "No" to any of the above questions, then you probably should not attempt creating a printer definition. If you still feel that you want to attempt the project, be aware that you may need to call the printer manufacturer one or more times to find out any extra information needed.

While WordPerfect's Customer Support department is more than happy to answer questions about currently defined printer definitions, they do not have the resources available to help you create a new printer definition. However, they are more than happy to answer any questions you may have about the features of the Printer program.

Printer Definition Types

There are two types of printer definitions that can be created with the Printer program. A standard definition can be created for any printer, except those that use the PostScript printer definition language (e.g., Apple LaserWriter Plus).

For PostScript printers, a much smaller definition can be created because a dictionary of terms can be sent at the beginning of each print job that describes the way that WordPerfect will be handling horizontal and vertical movement, downloading fonts, rules and shaded boxes, etc. The dictionary includes commands from the PostScript language that allow WordPerfect to print fonts in any point size, print a font in all four orientations, print graphics characters, etc.

Because a standard definition must provide places for information for all other types of printers, the menus are numerous, and can often be quite complex. The complexity is a result of all the different ways that printers handle printing text and graphics. While the menus have been simplified whenever possible, there are still some items listed that may only be unique to one or two printers.

Definition Methods

There are four basic methods of creating a printer definition. The first three involve creating a definition by adding a definition to the ALL file. The fourth method involves printers that can emulate more than one printer. The method you use may involve techniques from two or three of the methods listed below.

Pattern Method

The first method is to use an existing printer as pattern for creating the definition. If you are creating a standard printer definition, then use the Standard Printer that comes in the WPRINT3.ALL file on your Printer 3 diskette. If you are creating a definition for a PostScript definition, then use the Apple LaserWriter Plus definition that comes in the WPRINT2.ALL file on your Printer 2 diskette.

While some printer definitions may be very similar to the one needed for your printer, trying to customize one of them is not recommended unless you know exactly what needs to be done.

The Standard Printer definition provides some very basic functions such as printing letters, numbers, and punctuation. You may want to print a test document using the Standard Printer (after selecting the printer in WordPerfect) to see what changes to the definition need to be made. The Apple LaserWriter Plus is a much more complete definition for PostScript printers, simply because all Postscript printers understand the same command language. You may need to change very little in the definition to customize it for your printer.

New Definition Method

The second method is to start from the beginning by creating an entirely new printer definition. This method should only be attempted if you have the time, skill, and experience that it takes to understand and use printer codes and commands. Not only do you need to understand the individual commands of the printer language, but you also need to understand the "grammar" of the printer language. In addition, you should also be familiar with how to use the Printer program's own WPDL language (see the *Appendix* for details).

Conversion Method

The conversion method is similar to creating a new definition, except that you have already converted character maps and widths from WordPerfect 4.2, and have copied them to the ALL file where you will be creating the definition.

With the character maps and widths available, creating font definitions for the printer becomes much easier. However, you will still need to provide information about how the printer moves the printhead horizontally and vertically, the typefaces of fonts, sheet feeder information, etc.

See WordPerfect 4.2 Printer Definitions in Applications for details.

Emulation Method

The fourth method applies to printers that can emulate more than one printer. In other words, they can understand the command language of other printers. All you need to do is find out if a printer definition is available for one of the emulation modes, and then select the appropriate definition for that mode.

You may need to set a switch at the printer to change to the mode, or a command may need to be sent to the printer to switch to the mode. If a command needs to be sent, enter it in the PRS file with the Initialize at Start of Print Job command string in the Initialize and Reset menu (see *Initialize and Reset* in the Printer Definitions section of *Reference* for details).

Creating a Printer Definition

Once you have decided on the method to use for creating a printer definition (pattern or new definition), you are ready to begin the actual task of defining the printer.

What follows below are some very general steps for adding the definition to the ALL file. Once the definition has been added, you can then turn to *Reference* to answer any questions you may have about a particular item in the menu.

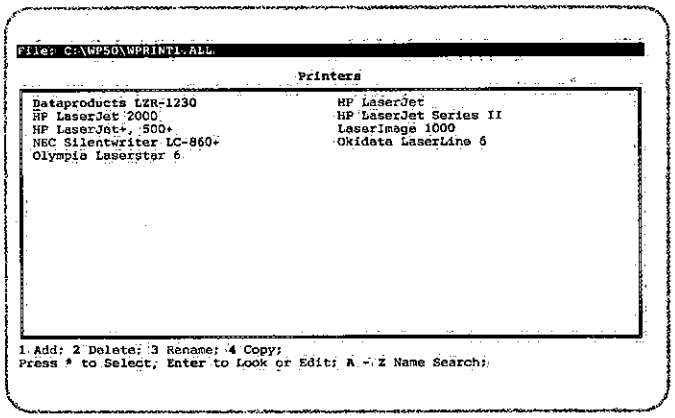
The Reference section is organized in the same order as the menus are displayed in the program. It may be helpful to familiarize yourself with the menu structure by turning to the menu chart at the end of *Overview*. If there are terms that you do not recognize, turn to the *Glossary* at the end of the manual for a brief description.

Retrieving the ALL File

The first step is to retrieve the ALL file to which you want to add the printer definition.

1 Start the Printer program.

2 Press **Retrieve** (Shift-F10) and enter the name of the ALL file.



If you are creating a definition using the Standard Printer as a pattern, retrieve the WPRINT3.ALL file. If you are creating a definition using the Apple LaserWriter Plus printer as a pattern, then retrieve the WPRINT2.ALL file.

If you are creating a new definition, then retrieve the smallest ALL file available.

Adding the Printer Definition to the ALL File

A printer definition can be added to the list by using Add at the bottom of the Printers menu.

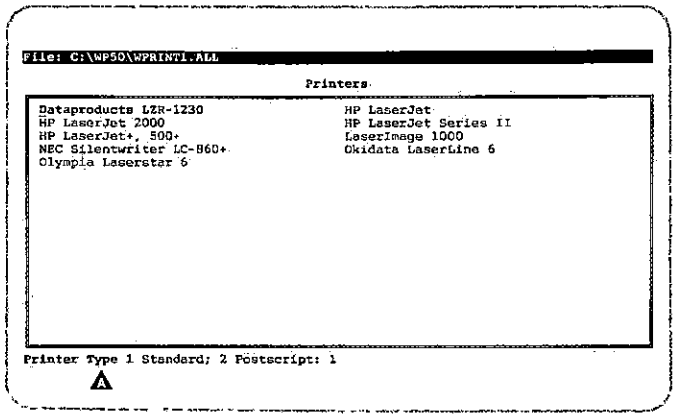
3 Place the cursor on the name of the printer you want to use as a pattern (if any), and then select Add (1).

4 Press **Enter** if you are using the printer as a pattern, or press **Ctrl-Enter** to create a new (blank) definition.

5 Enter a name for the printer definition you are adding to the list.

If you are creating a new definition, then a menu is displayed at the bottom of the screen requesting the type of printer definition you want to create (i.e., Standard or PostScript).

▲ TYPE MESSAGE



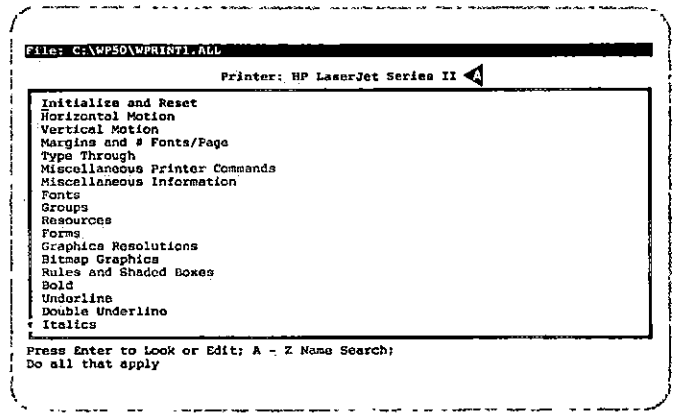
6 Type **1** to create a standard definition, or type **2** to create a PostScript definition.

The new definition is added to the list, and you are ready to begin editing.

7 Press **Enter** (with the cursor on the printer name) to display the Printer menu for the definition.

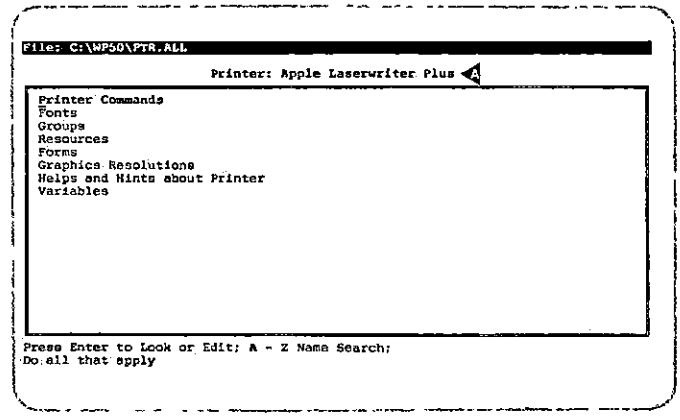
If the definition is for a standard printer, then the menu is displayed as follows.

▲ STANDARD PRINTER



If the definition is for a PostScript printer, then the menu is much shorter and is displayed as follows.

▲ POSTSCRIPT PRINTER



Each item in the menu is a heading in the Printer section of *Reference*. You can select an item from the menu by placing the cursor on the item and pressing **Enter**. Enter the appropriate information (as outlined in *Reference*), and then press **Exit** (F7) until you return to the Printer menu.

8 When you finish defining the printer, press **Quit** (Alt-F7), type **y**, and then press **Enter** to use the current name of the ALL file.

9 Type **y** to replace the ALL file on disk with the one containing the new definition, and then type **y** again to exit the Printer program.

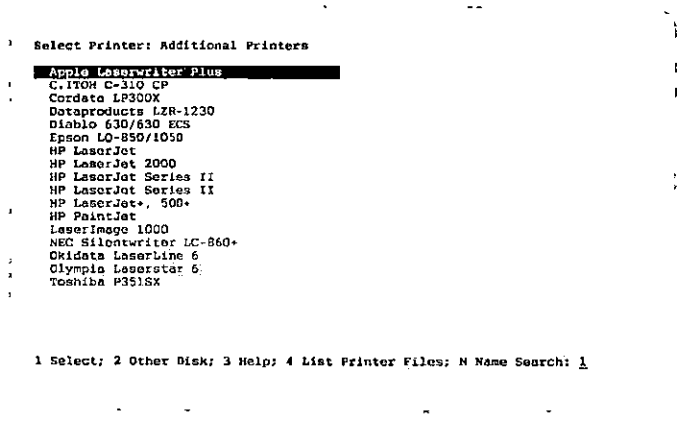
Creating the PRS File from the ALL File

Once the printer definition is added to the ALL file, a PRS file for printing can be created from WordPerfect.

10 Make sure that the edited ALL file has been copied to your WordPerfect directory, and then start WordPerfect.

11 Press **Print** (Shift-F7), select Select Printer (s), and then select Additional Printers (2).

A list of all the printers in the edited ALL file (and any other ALL files on the disk or directory) is displayed on your screen.

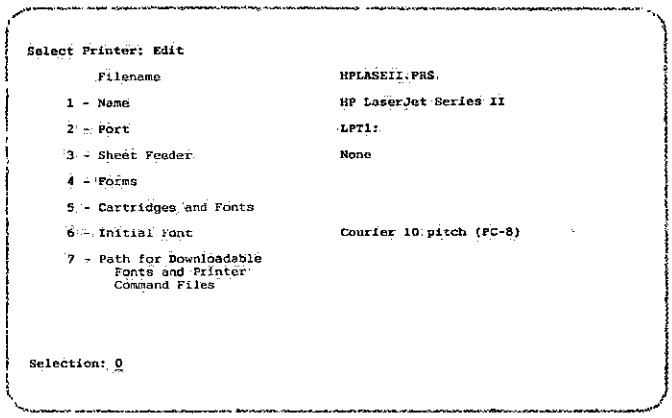


12 Place the cursor on the name of the new printer definition, and then press **Enter** to select the printer.

13 Enter the filename you want to use for the PRS file (include a .PRS extension).

The Printer Helps and Hints screen is displayed (if you created one in the ALL file) while WordPerfect creates the PRS file.

14 Press **Exit** (F7) to display the Edit menu for the printer.


Select Printer: Edit
Filename HPLASEII.PRS
1 - Name HP LaserJet Series II
2 - Port LPT1:
3 - Sheet Feeder None
4 - Forms
5 - Cartridges and Fonts
6 - Initial Font Courier 10 pitch (PC-8)
7 - Path for Downloadable Fonts and Printer Command Files
Selection: 0

The menu contains information that is stored in the WordPerfect settings file (WP{WP}.SET), the PRS file, and in the ALL file. Details about all these items can be found in the WordPerfect Reference manual. Sheet feeders and cartridges and fonts are discussed in Applications under *Sheet Feeders* and *Fonts*.

15 When you finish editing the printer information, press **Exit** (F7) to update the PRS file with any cartridges, fonts, or sheet feeders you have selected.

16 When the updating is completed, place the cursor on the name of the new printer, and then press **Enter** to select the printer.

17 Press **Exit** (F7) to return to the WordPerfect document editing screen.

Testing the PRS File

With the printer selected, you can test the new printer definition by sending a document to the printer. You may want to use the PRINTER.TST document on the Conversion diskette in the WordPerfect 5.0 package to test the majority of features available in WordPerfect.

Proportional Spacing Tables

The first fonts created for printers were designed to imitate the printed characters of a typewriter. Most typewriters printed characters at an even 10 or 12 characters per inch (pitch), so the fonts were created at the same fixed pitch (10 or 12). Although the size of characters varied (i.e., a "W" was smaller than an "i"), each character occupied the same amount of space on the page. This meant that some characters had more white space (extra spacing) around them than others.

Proportional Spacing

While fixed pitch (mono-spaced) fonts are still available for all printers, proportionally-spaced fonts have become very popular in the past few years. A proportional font is designed so that each character is assigned a different printed width. The smaller the character, the less space it takes up on the page, and the less white space there is between characters. The proportional spacing produces a much more legible page, and adds a quality to the printed text that makes it look like it is typeset instead of produced by a typewriter.

For WordPerfect to print using a fixed pitch font is a relatively simple task. As long as the correct size and spacing information (font cell height, pitch, width, etc.) is entered, and a character map is set up (with the code to print each character), WordPerfect can print each character using the same width on the page.

However, because each character in a proportionally-spaced font is a *different* width, WordPerfect needs to know the widths of the characters to correctly perform such features as right justification, tabulation, and repositioning on a second pass. In fact, any task that involves horizontally positioning text on the page is affected by the character widths in a proportionally-spaced font.

Unwanted PS Tables

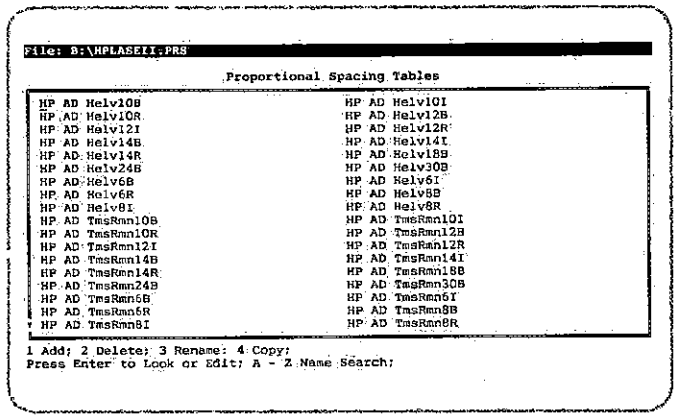
A simple way to quickly eliminate unwanted PS tables is to copy the printer definition to another file. Only the PS tables currently being used by the printer will be copied to the new (destination) file; those not being used are left behind in the original file.

The same process also eliminates any unnecessary character maps and typefaces from the printer definition.

Displaying a PS Table

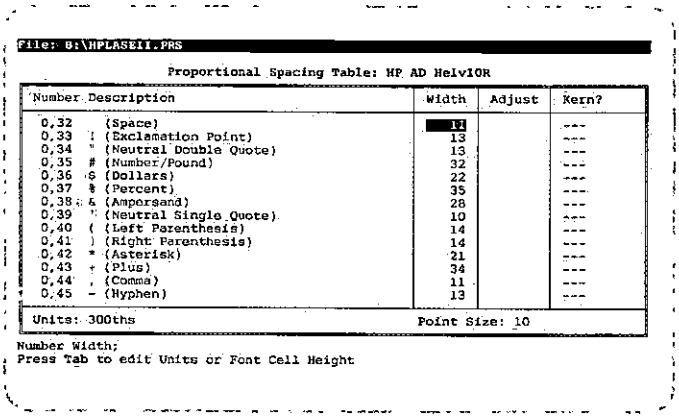
The widths are stored in a proportional spacing (PS) table that is assigned to the font. The proportional spacing tables are stored in the ALL file, and can be displayed and edited by using the Printer program.

1. Start the Printer program.
2. Press **Retrieve** (Shift-F10) and enter the name of the ALL file where your printer information is stored.
3. Press **PS Tables** (F6) to display a list of all the PS tables in the file.



The fewer the proportionally-spaced fonts in the file, the fewer PS tables are needed. In fact, when WordPerfect creates a PRS file from an ALL file, only the PS tables assigned to the fonts being copied are included in the PRS file.

4 Place the cursor on the name of a PS table and press **Enter** to display the table.


File: B:\HPLASEII.PRS
Proportional Spacing Table: HP AD HelvIOR
Number Description
Width
Adjust
Kern?
0,32 (Space) 11 ---
0,33 ! (Exclamation Point) 13 ---
0,34 " (Neutral Double Quote) 13 ---
0,35 # (Number/Pound) 32 ---
0,36 $ (Dollars) 22 ---
0,37 % (Percent) 35 ---
0,38 & (Ampersand) 28 ---
0,39 ' (Neutral Single Quote) 10 ---
0,40 ((Left Parenthesis) 14 ---
0,41) (Right Parenthesis) 14 ---
0,42 * (Asterisk) 21 ---
0,43 + (Plus) 34 ---
0,44 , (Comma) 11 ---
0,45 - (Hyphen) 13 ---
Units: 300ths
Point Size: 10
Number Width;
Press Tab to edit Units or Font Cell Height

The PS table is divided into four columns. The first column includes the character set number and character name for each character in the WordPerfect character sets. The second and third columns contain the widths of the characters, and any adjustment to the character placement within the character cell that needs to be made. The fourth column lets you set up kerning values for the characters in the font (see *Kerning Tables* in Applications for details).

All the cursor keys are available for scrolling through the table. By pressing **Go To** (Ctrl-Home) and entering a character from the keyboard or a character set number (e.g. 3,20), you can scroll directly to a character. You may also want to use **↓Search** (F2) or **↑Search** (Shift-F2) to search for the character by typing all or part of a description listed in the table.

5 Press **↓Search** (F2), type **underscore**, and then press **↓Search** again to move the cursor to the underscore character in the table.

Editing a PS Table Width

Sometimes a character width may not be correct in the table, or may need to be entered. You can quickly adjust or add the width by typing the new value.

6 With the cursor on the character width you want to edit, type the new width and then press **Enter**.

The new width is displayed in the table, and the cursor moves down to the next character in the table.

If a PS table is assigned to a font, a width needs to be entered in the PS table (and a command in the font's character map) or WordPerfect will not preview or print the listed character.

Copying a PS Table

Once editing changes have been made to the PS table, the table should be copied to the PRS file so that WordPerfect can use the new width(s).

7 Press **Exit** (F7) to return to the list of PS tables.

8 Place the cursor on the name of the edited PS table, and then select Copy (4) to copy the table.

9 Enter the name of the PRS file which contains information for your printer.

With the table copied, you can exit the Printer program to return to WordPerfect and test the new width.

10 Press **Quit** (Alt-F7), type **y**, and then press **Enter** to use the same filename.

11 Type **y** to replace the ALL file on disk with the edited version, and then type **y** to exit the Printer program.

Creating a PS Table

Whenever you purchase a font to use with your printer (e.g., soft font, cartridge font), you need to select a font definition from the ALL file and have WordPerfect copy it to the PRS file.

Sometimes a font may not be currently defined in the ALL file you received in the WordPerfect 5.0 package. In this case, you may need to create your own font definition and a character map (see *Fonts* and *Character Maps* in Applications for details).

If the font is proportionally-spaced, then you will also need to create a PS table and assign it to the font.

Sometimes an existing PS Table can be used by a font if each width in the table can be multiplied by a single number to produce the correct widths. For details, turn to Size and Spacing Information in the Printer section of Reference.

1 Start the Printer program.

2 Press **Retrieve** (Shift-F10) and enter the name of the ALL file that contains the new font definition and character map.

3 Press **PS Tables** (F6) to display a list of all the PS tables in the file.

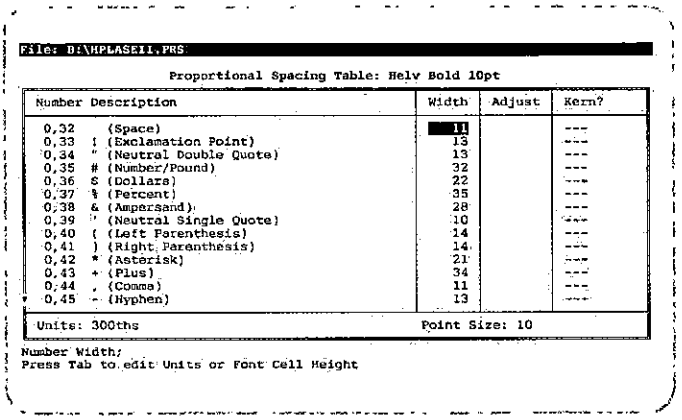
Adding the PS Table to the List

At this point, you need to decide if you want to use another PS table as a pattern to follow when entering the character widths, or enter the widths into an empty table. In most cases, you will want to start with an empty table, as character widths are customized to the typeface and size of each font.

4 Place the cursor on the name of the PS Table you want to use as a pattern and press **Enter**, or press **Ctrl-Enter** to create an empty PS table.

5 Enter a name for the PS Table (i.e., the name of the font for quick reference).

6 Place the cursor on the name of the new PS Table in the list, and press **Enter** to display the table.


File: D:\HPLASEII.PRS
Proportional Spacing Table: Helv Bold 10pt
Number Description
Width
Adjust
Kern?
0,32 (Space) 11 ---
0,33 ! (Exclamation Point) 13 ---
0,34 " (Neutral Double Quote) 13 ---
0,35 # (Number/Pound) 32 ---
0,36 $ (Dollars) 22 ---
0,37 % (Percent) 35 ---
0,38 & (Ampersand) 28 ---
0,39 ' (Neutral Single Quote) 10 ---
0,40 ((Left Parenthesis) 14 ---
0,41) (Right Parenthesis) 14 ---
0,42 * (Asterisk) 21 ---
0,43 + (Plus) 34 ---
0,44 , (Comma) 11 ---
0,45 - (Hyphen) 13 ---
Units: 300ths
Point Size: 10
Number Width;
Press Tab to edit Units or Font Cell Height

Notice that a Units number and a Point Size number appear at the bottom of the table. The Units number is usually the horizontal spacing units entered in the Size and Spacing Information menu for the font. The Point Size (except for a PostScript font) should also be the point size entered in the Size and Spacing menu of the font.

If either of these items is incorrect, press **Tab** to move the cursor to an item, and then enter the correct number. When you finish, press **Tab** until the cursor returns to the Width column in the PS table.

For PostScript fonts, enter a -1 for the Units to display the message "PostScript Units" at the bottom of the menu.

Entering the Widths

You are now ready to begin entering the character widths for each character in the font.

7 Place the cursor on a character for which you want to enter a character width, type the width value, and then press **Enter**.

The cursor moves down to the next character in the table to let you automatically begin entering a value for the next width (if necessary).

All the cursor keys are available for scrolling through the table. By pressing **Go To** (Ctrl-Home) and entering a character from the keyboard or a character set number (e.g., 3,20), you can scroll directly to a character. You may also want to use **↓Search** (F2) or **↑Search** (Shift-F2) to search for the character by typing all or part of a description listed in the table.

PostScript Printer Widths

The width values are sometimes provided by the font manufacturer with the purchased font. For example, for each PostScript font you purchase, a .AFM font metrics file is provided that includes the character widths for all the characters in the font. Simply enter the provided widths directly into the PS table you are creating in the Printer program, and the PS Table is ready to use.

Standard Printer Widths

For other fonts, you may need to contact the manufacturer for the font widths. Once you receive the width values from the manufacturer, you may need to recalculate the widths in terms of the Units displayed at the bottom of the PS table. For example, if the widths are in 360ths of an inch, and the Units are in 180ths of an inch, you will need to multiply each width value from the manufacturer by .5 before entering the width in the table.

Calculating Your Own Widths

In some cases, you may need to find out on your own the exact width of each character. For example, to create a PS table for a font with 300ths of an inch horizontal spacing units, make sure that there is no PS Table assigned to the font in the PRS file, and then start WordPerfect. Turn justification off, and then type a line of 60 characters for each uppercase letter of the alphabet (e.g., sixty "A's", sixty "B's", sixty "C's"), and then print the page.

Measure each line of characters in inches, and then take each measurement and multiply it by 5 (300 units/60 characters = 5) to produce the correct character width. For example, if the line of "A's" is 4.2 inches, multiplying 4.2 by 5 produces a width of 21/300ths of an inch. After printing and calculating the widths of all the characters in the font, retrieve the ALL file into the Printer program, and then begin entering the widths into the table.

When you finish, copy the table to the PRS file, retrieve the file into the Printer program, assign the PS table to the font, save the PRS file, and then test the table in WordPerfect by printing text with justification on. You may need to return to the ALL file again to adjust some of the character widths, and then copy the PS table to the PRS file before testing the adjustments.

Adjusting the Widths

On some older Diablo and daisy wheel printers, the character in the font does not always print in the center of the character cell.

8 Place the cursor on the character you need to adjust and then press **Right Arrow** (→) to place the cursor in the adjust column.

9 Enter an adjust value in horizontal spacing units (Units) to move the character to the center of the character cell.

Enter a negative number to move the character to the left, or enter a positive number to move the character to the right.

For most fonts, especially on more recent printer models, an adjustment value is not necessary.

Kerning Characters

The third column in the PS table displays a table that lets you kern any character in the font to the character on which the cursor is resting in the PS table. For details on setting up a kerning table, turn to *Kerning Tables* in Applications.

Assigning the PS Table to the Font (ALL File)

After entering the character widths in the table, you are ready to assign the PS table to the font definition.

10 Press **Printer Definitions** (F8) to display the list of printers in the file.

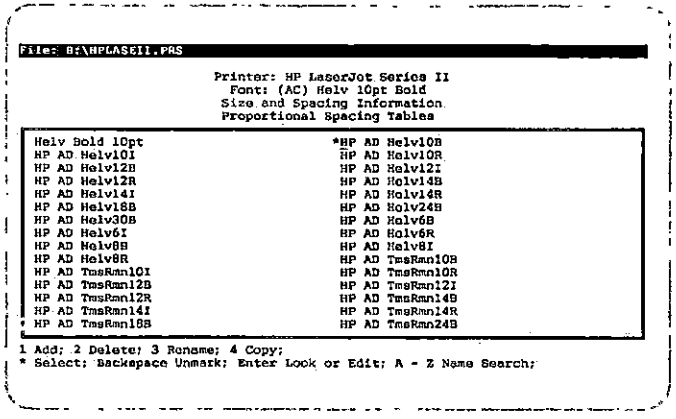
11 Place the cursor on the name of your printer, and then press **Enter** to display the Printer menu.

12 Select Fonts from the Printer menu to display a list of all the fonts in the file.

13 Place the cursor on the name of the font that you want to assign the PS table, and then press **Enter** to display the Font menu.

14 Select Size and Spacing Information from the menu, press **Enter**, and then press **Page Down** (PgDn) to move the cursor to the Proportional Spacing Table item at the bottom of the menu.

15 Press **Enter** to display a list of all the PS tables in the file.



16 Place the cursor on the newly-created PS table, and then type an asterisk (*) to mark the table for the font.

17 Press **Exit** (F7) to return to the Size and Spacing Information menu.

Now that the table has been assigned to the font in the ALL file, the file should be saved.

18 Press **Quit** (Alt-F7), type **y**, and then press **Enter** to use the same filename.

19 Type **y** to replace the file on disk with the edited ALL file, and then type **n** to stay in the Printer program.

Assigning the PS Table to the Font (PRS File)

The final step in creating a PS table is to make sure that the table is assigned to the font in the PRS file.

20 Press **Retrieve** (Shift-F10), and then enter the name of the PRS file to which the PS table was copied.

Now, follow steps 11 through 19 above to mark the PS table for the font. When you finish marking the table and saving the PRS file, you can exit the Printer program and then test the widths by printing a document with justification on.

Redline

Redlining is a method of indicating text that has been added to a document by an editor. Normally, redline text is highlighted with a marker, or underlined with a red pen. However, with the advancements in printing from a computer, other methods are being used to indicate redline text in a document.

While redline text in a WordPerfect document can be marked by using the Redline attribute on the Appearance menu (Ctrl-F8,2,8), the way WordPerfect prints the redline text depends upon the information in the PRS file.

AFCs and Methods

If a font is assigned to the Redline automatic font change (AFC) for the current font, then WordPerfect switches to that font whenever text is redlined in the document.

However, most PRS files do not have a font specifically assigned to the AFC, so WordPerfect searches through a list of redlining methods to see if a method has been selected to mark redline text. If a method has been selected and includes the appropriate information, then the current font is used to print the redline text, but the text is marked as redlined.

PRS and ALL Files

If you decide to mark redline text in a document by assigning a font as an AFC, then the change should be made to the PRS file. However, be aware that if you ever update the PRS file from the ALL file in WordPerfect, then the change you made to the AFC for Redline will be erased if you let WordPerfect assign new automatic font changes.

If you decide to change the method WordPerfect uses to mark redline text when an AFC is not available, then the change should be made to the ALL file so that the same method is always available whenever you update the PRS file from the ALL file in WordPerfect.

Automatic Font Change (AFC)

Each font displayed for a printer in the WordPerfect base font list (Ctrl-F8,4) is assigned a list of automatic font changes (AFCs). The AFC list includes an automatic font change for the Redline feature, as well as other font attributes in WordPerfect (e.g., Bold and Underline).

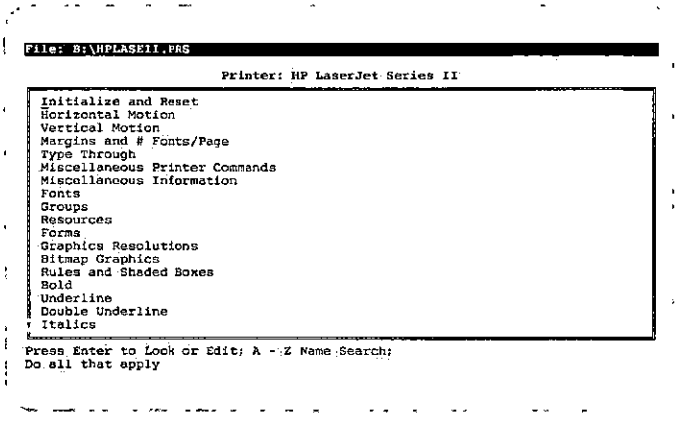
For details on automatic font changes, turn to Automatic Font Changes (AFCs) in Applications or Fonts in the Printers section of Reference.

If you want to change to a special font for indicating redline text in a document (e.g., Bold Oblique or Italics), then you can select the font by editing the PRS file.

1 Start the Printer program.

2 Press **Retrieve** (Shift-F10) and enter the name of the PRS file.

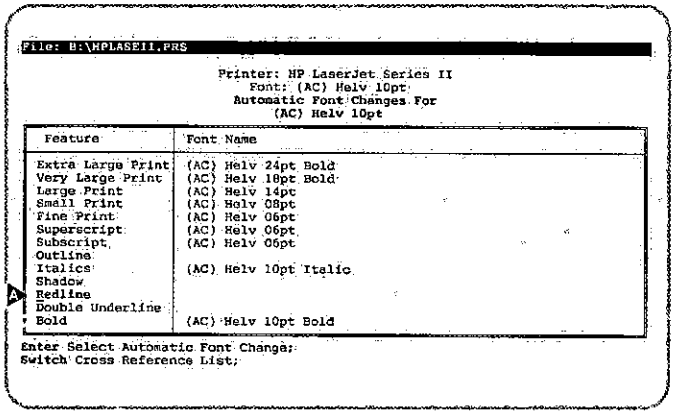
3 Press **Enter**, with the cursor on the printer name, to display the Printer menu.



4 Select Fonts from the Printer menu to display a list of all the fonts available in the PRS file.

5 Place the cursor on the name of the font for which you want to assign a Redline automatic font change, and then press **Enter** to display the Font menu.

6 Select Automatic Font Changes from the Font menu to display a list of all the AFCs for the font.



▲ FONT FOR REDLINE ATTRIBUTE

7 Type **r** and then press **Enter** to place the cursor on the Redline attribute.

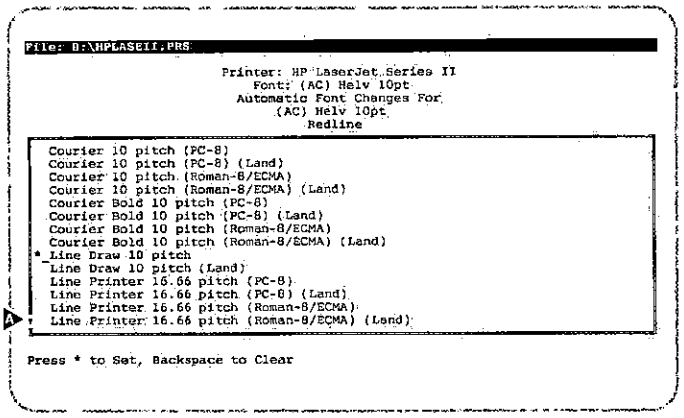
8 Press **Enter** to display a list of all the fonts in the PRS file.

9 Place the cursor on the font to assign to the Redline attribute.

10 Type an asterisk (*) to mark the font (or press **Enter** and type **y**).

If the list of fonts is longer than can be displayed in the menu, an arrow appears in the lower left corner of the menu border.

▲ MORE FONTS LISTED


File: D:\HPLASEII.PRS
Printer: HP LaserJet Series II
Font: (AC) Helv 10pt
Automatic Font Changes For
(AC) Helv 10pt
Redline
Courier 10 pitch (PC-8)
Courier 10 pitch (PC-8) (Land)
Courier 10 pitch (Roman-8/ECMA)
Courier 10 pitch (Roman-8/ECMA) (Land)
Courier Bold 10 pitch (PC-8)
Courier Bold 10 pitch (PC-8) (Land)
Courier Bold 10 pitch (Roman-8/ECMA)
Courier Bold 10 pitch (Roman-8/ECMA) (Land)
* Line Draw 10 pitch
Line Draw 10 pitch (Land)
Line Printer 16.66 pitch (PC-8)
Line Printer 16.66 pitch (PC-8) (Land)
Line Printer 16.66 pitch (Roman-8/ECMA)
Line Printer 16.66 pitch (Roman-8/ECMA) (Land)
Press * to Set, Backspace to Clear

The cursor keys (e.g., Down Arrow, Screen Down) can be used to scroll through the rest of the list until the name of the font you want is displayed in the menu.

11 Press **Exit** (F7) to return to the AFC list.

With a font selected for the Redline automatic font change, WordPerfect uses that font each time redline text is marked for the current font in a document.

12 Press **Quit** (Alt-F7), type **y**, and then press **Enter** to use the current name of the PRS file.

13 Type **y** to replace the PRS file on disk with the edited version, and then type **y** again to exit the Printer program.

You can test the Redline automatic font change in WordPerfect by selecting the base font from the Fonts menu (Ctrl-F8,4), selecting the Redline attribute (Ctrl-F8,2,8), typing a line of text, and then sending the text to the printer.

Redline Methods

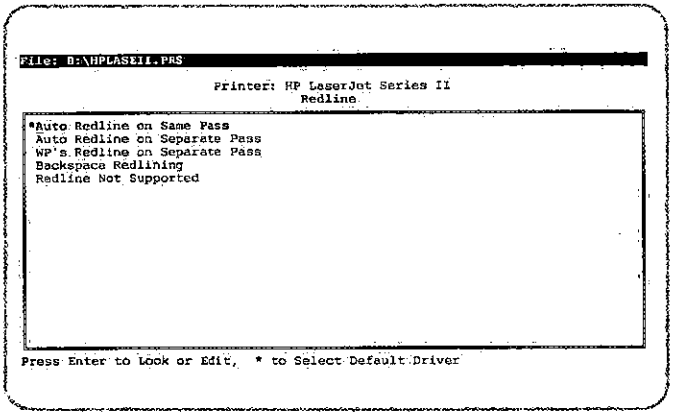
Whenever redline text appears in a document during a print job, and a font is not selected for an automatic font change (AFC), WordPerfect checks a list of redline methods in the PRS file to find an alternative way to mark redline text for the current font.

If a method is marked, then WordPerfect uses the information for that method to print redline text, unless the SETMETHOD function has been used (see *Multiple Methods* below for details).

Displaying the Redline Methods

If you are not satisfied with the current method used to mark redline text, you may want to edit the ALL file to change the method.

1. Start the Printer program.
2. Press **Retrieve** (Shift-F10) and enter the name of the ALL file that contains information for your printer.
3. Place the cursor on the name of your printer, and then press **Enter** to display the Printer menu.
4. Type **red** and then press **Enter** to move the cursor to the Redline item, and then press **Enter** to display the Redline menu.


File: B:\HPLASEII.PRS
Printer: HP LaserJet Series II
Redline
*Auto Redline on Same Pass
Auto Redline on Separate Pass
WP's Redline on Separate Pass
Backspace Redlining
Redline Not Supported
Press Enter to Look or Edit, * to Select Default Driver

A list of four methods is displayed on the screen (plus Redline Not Supported). The Auto Redline methods use the printer's Auto Redline feature to mark redline text. However, if an Auto Redline feature does not exist, you can still enter commands to start and stop marking redline text.

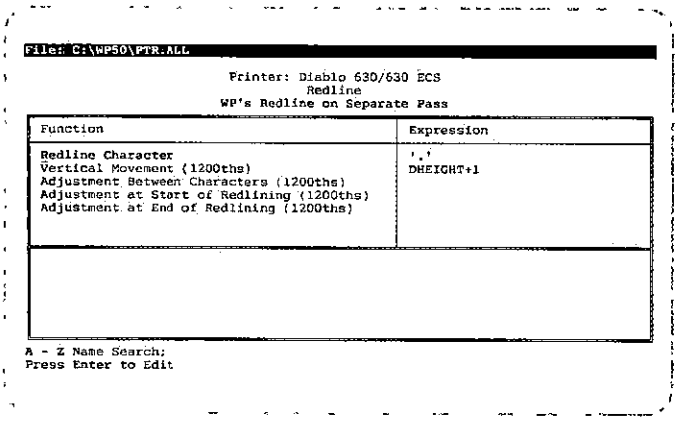
For example, the Auto Redline on Same Pass method is marked for the HP LaserJet Series II printer. While there is no Auto Redline feature defined for the printer, a command string has been entered that graphically shades redline text in the printed document.

Both auto redline methods use an on and an off command string to mark redline text, but the same pass method redlines the text as it is printed (on the same pass of the printhead), while the separate pass method prints the text on the first pass of the printhead, and then passes over the text again to redline it.

Editing a Method

The most frequently used method for redlining text at the printer is to use WP's Redline on Separate Pass. The text is printed on the first pass of the printhead, and then a selected character is printed over the text on a second pass.

5 Place the cursor on WP's Redline on Separate Pass, and then press **Enter**.



For example, the redline character used for the Diablo 630 printer definition is a period (.). The vertical movement indicates that the period should be moved down the height of the fonts descenders (DHEIGHT) plus 1/1200th of an inch. When WordPerfect prints the period on the second pass of the printhead, a line of periods is printed just below the descenders in the text.

Three other adjustments (in 1200ths of an inch) can be made for the space between the redline characters, and a horizontal shift at the beginning and/or end of the line of redline characters. In the case of the Diablo 630, only a vertical adjustment is made.

6 Place the cursor on Redline Character, press **Enter**, and then enter the character to use for marking redline text.

Characters on your keyboard can be entered by placing them between a set of single parentheses (e.g., '.').

For other characters in the WordPerfect character sets, you can calculate a value to enter for the character. The value is calculated by multiplying the character set number by 256 and then adding the character number in the set to the result.

For example, the complete character set number of box shade 1 (▒) is 3,0. By multiplying 256 times 3 and adding 0 to the result (256*3+0), a value of 768 is obtained for box shade 1. The value should then be entered in brackets (e.g., [768]) for the redline character.

7 Enter any vertical or horizontal adjustments you want to make to the printed redline character.

8 Press **Exit** (F7) to return to the Redline menu, and then type an asterisk (*) to mark the method for use by WordPerfect.

Saving the ALL File

With the redline method marked, and the appropriate information entered, the edited ALL file should then be saved.

9 Press **Quit** (Alt-F7), type **y**, and then press **Enter** to use the same name for the ALL file.

10 Type **y** to replace the original file on disk with the edited version, and then type **y** again to exit the Printer program.

Updating the PRS File

The final step in adding a redline method is to update the PRS file from the ALL file in WordPerfect.

11 Start WordPerfect.

12 Press **Print** (Shift-F7), and then select Select Printer (s).

13 Place the cursor on the name of your printer, and then select Update (7).

If you have edited printer commands in the PRS file, then a "Changes to the .PRS file will be lost. Continue? (Y/N) N" message appears. If you type **y** to continue, then the changes in the PRS file will be replaced by the information in the ALL file. If you type **n**, then the PRS file is not updated, and the new font is not added to the file.

14 Type **y** to copy information from the ALL file to the PRS file (updating).

If you have edited any automatic font changes (AFCs) or substitute fonts in the PRS file, then a "Do you want new Automatic Font Changes? (Y/N) No" and/or "Do you want new Substitute Fonts? (Y/N) No" message appears. If you type **y** to either question, then any changes in the PRS file are replaced by the updating done by WordPerfect. If you type **n**, then WordPerfect adds the font definition, but does not change the selections in the PRS file.

15 Type **y** to either question if you want WordPerfect to update the fonts.

WordPerfect does not update AFCs and substitute fonts in the PRS file if they have already been marked in the ALL file. For this reason, it is important to make all your editing changes to AFCs and substitute fonts in the PRS file.

16 Once the updating is completed, press **Exit** (F7) two times to return to the Select Printers list.

17 Place the cursor on the name of your printer, and then press **Enter** to select the printer.

18 Press **Exit** (F7) to return to the WordPerfect document editing screen.

Testing the Redline Method

While in the document editing screen, you can test the redline method by selecting a base font that does not have a Redline automatic font change assigned.

19 Press **Font** (Ctrl-F8), select Base Font (4), and then place the cursor on the name of a base font that does not have a Redline automatic font change assigned.

20 Press **Enter** to select the font.

21 Press **Font** (Ctrl-F8), select Appearance (2), and then select Redline (8).

22 Type a line of text, and then send the page to the printer.

The printed text should be marked with the character or method you selected in the Redline menu. If not, you may want to retrieve the PRS file into the Printer program to make sure that the method is marked, and that the information for the method is entered correctly.

Multiple Methods

While only one redline method can be marked at a time in the PRS or ALL file, information can be entered for one or more methods, and then a method selected in the Select Font command (Load and Select Strings in the Font menu) by using the SETMETHOD function.

For example, entering **SETMETHOD(REDLINE,WPSEPARATE)** as part of the select font command selects WP's Redline on Separate Pass method for the font, even though the Auto Redline on Same Pass method may be marked (*) in the Redline menu for the printer.

Because WordPerfect continues using the new Redline method until another SETMETHOD command is encountered, you need enter the SETMETHOD command in the Deselect Font string to set the method back to the default method marked (*) in the Redline menu.

For example, if the default method for the printer is Auto Redline on Same Pass, then entering **SETMETHOD(REDLINE,AUTOSAME)** for the Deselect Font command sets the Redline method back to Auto Redline on Same Pass when WordPerfect switches to another font.

The SETMETHOD command should only be entered in the Select and Deselect Font command strings, or "garbage" printing will occur. For details on using the SETMETHOD command, turn to *WordPerfect Description Language (WPDL)* in *Appendix.*

Sheet Feeders

A sheet feeder is designed to attach to your printer as a separate unit, and can usually be purchased as a separate item. A sheet feeder has at least one slot (bin) for storing a quantity of paper, envelopes, etc., that can be fed into the printer a single form at a time.

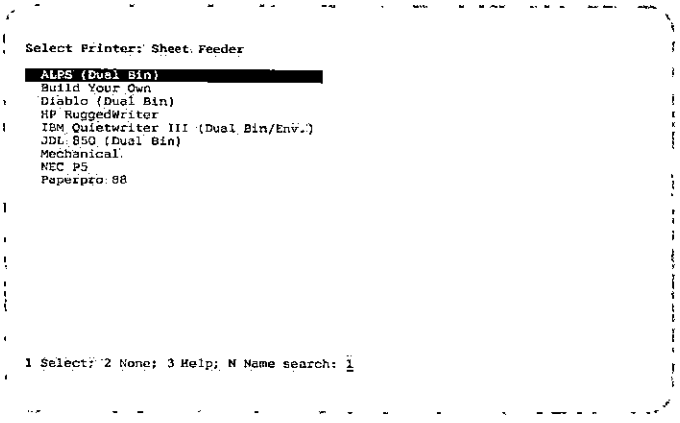
A definition for a sheet feeder needs to be created and selected for your printer (even if the sheet feeder only has one bin) before WordPerfect can select paper from the correct bin, and then feed it properly into the printer.

In addition, each form in the forms list should be assigned the correct bin number so that when you select a Paper Size/Type in WordPerfect (Shift-F8,2,8), the paper you need is selected from the bin.

Displaying the Sheet Feeders

A list of the sheet feeders available in the ALL file can be displayed while editing the PRS file in WordPerfect.

1. Press **Print** (Shift-F7), and then select Select Printer (s).
2. Place the cursor on the name of your printer, and then select Edit (3).
3. Select Sheet Feeder (3) from the Edit menu to display a list of all the Sheet Feeders defined in the ALL file from which the PRS file was created.



This list can be displayed when creating the PRS file, or whenever you need to select a sheet feeder for your printer. All you need to do is place the cursor on the name of the sheet feeder you need, and then press **Enter** to copy the sheet feeder definition to the PRS file.

4 Press **Exit** (F7) three times to return to the document editing screen.

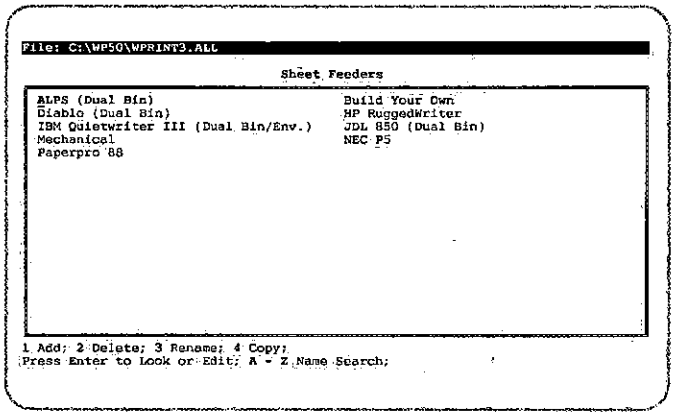
Defining a Sheet Feeder

If your sheet feeder is not listed, then you need to create a sheet feeder definition in the ALL file. To help you create the definition, a special "Build Your Own" sheet feeder definition has been included in the WPRINT3.ALL file on the Printer 3 diskette.

1 Make sure that the WPRINT3.ALL file is in your WordPerfect directory, and then start the Printer program.

2 Press **Retrieve** (Shift-F10), and then enter **wprint3.all** to retrieve the third ALL file.

3 Press **Sheet Feeder Definitions** (Shift-F8) to display the list of sheet feeders in the file.



Adding the Sheet Feeder to the List

The first step is to add your sheet feeder to the list of all the sheet feeders in the file.

4 Place the cursor on the "Build Your Own" sheet feeder definition, and then select Add (1).

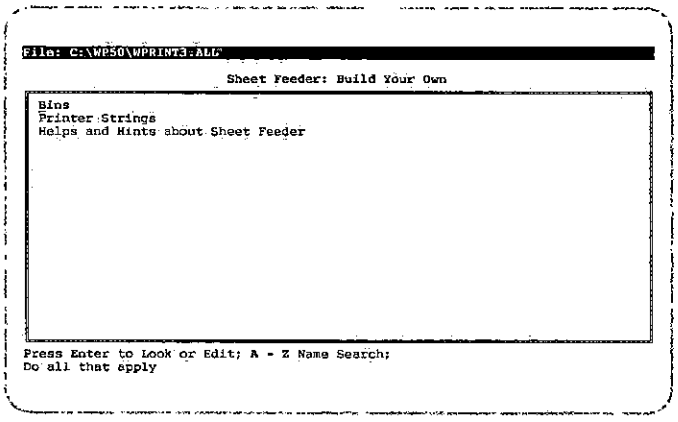
5 Press **Enter** to use the "Build Your Own" definition as a pattern.

6 Enter the name of your sheet feeder.

Editing the Sheet Feeder Definition

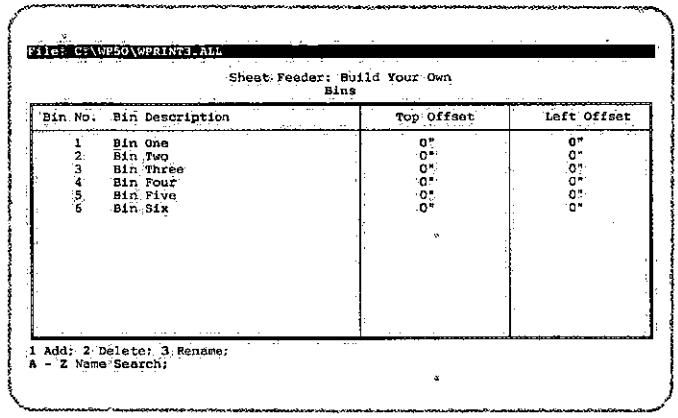
With the sheet feeder added to the list, you are ready to begin editing the sheet feeder information.

7 Place the cursor on the name of the new sheet feeder, and then press **Enter** to display the Sheet Feeder menu.


File: C:\WP50\WPRINT3.ALL
Sheet Feeder: Build Your Own
Bins
Printer Strings
Helps and Hints about Sheet Feeder
Press Enter to Look or Edit; A - Z Name Search;
Do all that apply

There are two basic items of information that need to be edited—the list of bins and the printer commands needed to select the paper from the bin.

8 Select Bins from the Sheet Feeder menu.


File: C:\WP50\WPRINT.ALL
Sheet Feeder: Build Your Own
Bins
Bin No. Bin Description Top Offset Left Offset
1 Bin One 0" 0"
2 Bin Two 0" 0"
3 Bin Three 0" 0"
4 Bin Four 0" 0"
5 Bin Five 0" 0"
6 Bin Six 0" 0"
1 Add; 2 Delete; 3 Rename;
A - Z Name Search;

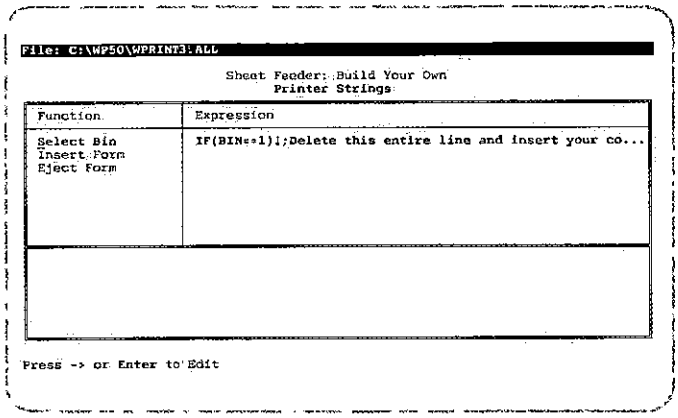
A list of six bins is displayed with a Top Offset and Left Offset column that lets you adjust the printing position of the printhead so that margins will be accurate in WordPerfect. After using the sheet feeder definition, you may want to return to this menu to adjust the top and left offsets (see *Sheet Feeder Definitions* in *Reference* for details).

For now, all you may want to do is use the menu at the bottom of the screen to add another bin (usually not necessary), or rename a bin to more accurately describe the location or type of bin. The bin numbers in the first column are automatically inserted as you add or delete bins in the list.

You do not need to delete any bins in the list (if you have less than six), as WordPerfect only uses the bins that are needed for your sheet feeder.

9 After editing the list of bins, press **Exit** (F7) to return to the Sheet Feeder menu.

10 Select Printer Strings to display a menu of commands for controlling sheet feeder bin selection and paper management.



For some printers, a command to select a bin is only needed at the beginning of a print job, and any time during the print job that the bin number changes. For other printers, a select bin command needs to be sent at the beginning of each page.

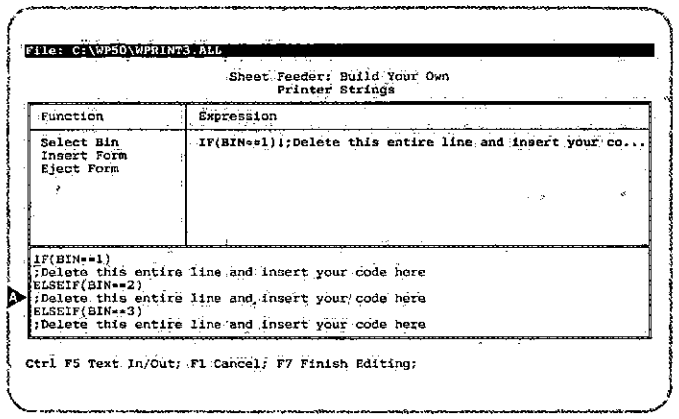
When the command only needs to be sent at the beginning of the print job, enter the command in Select Bin. When the command needs to be sent at the beginning of each page, enter the command in Insert Form.

Do not enter a command for both items, or an extra sheet of paper may be fed through the printer after every page is printed.

A template command string has been included for Select Bin that can be edited for your particular sheet feeder.

11 Place the cursor on Select Bin, press **Right Arrow** (→), and then press **Ctrl-Enter** to display the string in the editing window.

▲ EDITING WINDOW


File: C:\WP5D\WPRINT3.ALL
Sheet Feeder: Build Your Own Printer Strings
Function
Expression
Select Bin
Insert Form
Eject Form
IF(BIN==1);Delete this entire line and insert your co...
IF(BIN==1)
;Delete this entire line and insert your code here
ELSEIF(BIN==2)
;Delete this entire line and insert your code here
ELSEIF(BIN==3)
;Delete this entire line and insert your code here
Ctrl F5 Text In/Out; F1 Cancel; F7 Finish Editing;

The string uses the IF, ELSEIF, ENDIF functions to set up a statement that sends the correct command to the printer when a bin change is needed in a WordPerfect document. BIN is a variable that is assigned the number of the bin.

The default bin (usually bin 1) is used by WordPerfect for printing until a different page type/size is requested in the document. WordPerfect then looks in the forms list, finds the bin number for the form, and assigns it to the BIN variable. WordPerfect then reads the Select Bin string to find the correct command to send to the printer to select the requested form.

"IF the BIN variable is 1, then send the command in the next line to the printer, ELSEIF the BIN variable is 2, then send the command in the next line to the printer, . . ."

All you need to do to the provided template is erase the entire line below the IF or ELSEIF statement for each bin that you have in the sheet feeder, and then type in the command needed to select paper from that bin (check your sheet feeder documentation).

As with the list of bins, you only need to edit the lines for each existing bin. Any extra bins can be left in the command string, and will be ignored by WordPerfect.

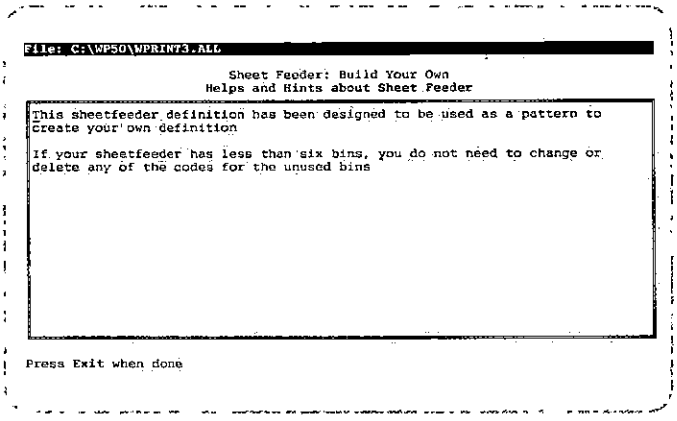
12 When you finish editing the string, press **Exit** (F7) to place the command string back into the menu.

If the command string needs to be placed in Insert Form, then type the command string in the Insert Form field, using the Select Bin string as a pattern, and then erase the command string from Select Bin.

For sheet feeders that need an eject string sent at the end of each page, enter the string in Eject Form.

13 When you finish with the Printer Strings menu, press **Exit** (F7) to return to the Sheet Feeder menu.

14 Select Helps and Hints about Sheet Feeder to display an editing window in which the help message is displayed for the sheet feeder.


File: C:\WP50\WPRIN73.ALL
Sheet Feeder: Build Your Own
Helps and Hints about Sheet Feeder
This sheetfeeder definition has been designed to be used as a pattern to create your own definition
If your sheetfeeder has less than six bins, you do not need to change or delete any of the codes for the unused bins
Press Exit when done

At this point, you may want to erase the messages included to explain the original "Build Your Own" sheet feeder definition, and type in valuable information about the sheet feeder such as paper assignments for the sheet feeder bins (see *Sheet Feeder Definitions* in *Reference* for details).

The sheet feeder help screen can be displayed in WordPerfect by selecting Help (3) while in the list of sheet feeders (Shift-F7,s,3,3).

15 When you finish, press **Exit** (F7) twice to return to the list of sheet feeder definitions.

Copying the Sheet Feeder Definition

If the sheet feeder definition you have created needs to be copied to an ALL file where your printer information is located, then place the cursor on the new sheet feeder definition, select Copy (4) from the menu at the bottom of the sheet feeder list, and then enter the name of the ALL file to which the definition needs to be copied.

After copying the definition, you need to press **Quit** (Alt-F7) to save the current ALL file and clear the Printer program (do not exit). You can then press **Retrieve** (Shift-F10) to retrieve the ALL file where your printer information is stored and continue on with assigning bin numbers to the forms in the file.

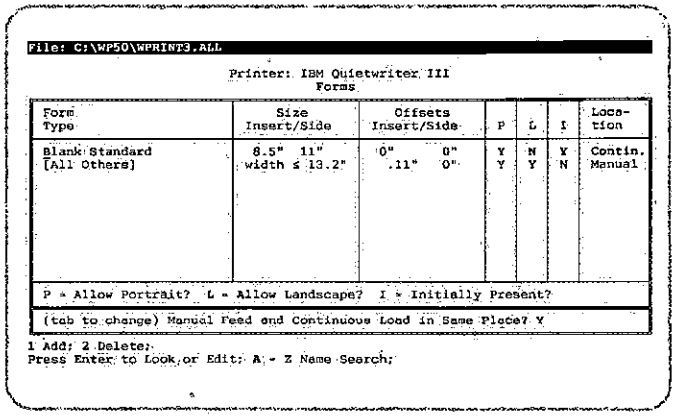
Assigning Bin Numbers to the Forms

Before exiting the Printer program to copy the sheet feeder definition to the PRS file, you should update the forms to make sure that the listed forms select paper from the correct bins.

16 Press **Printer Definitions** (F8) to display a list of all the printers in the file.

17 Place the cursor on the name of your printer, and then press **Enter** to display the Printer menu.

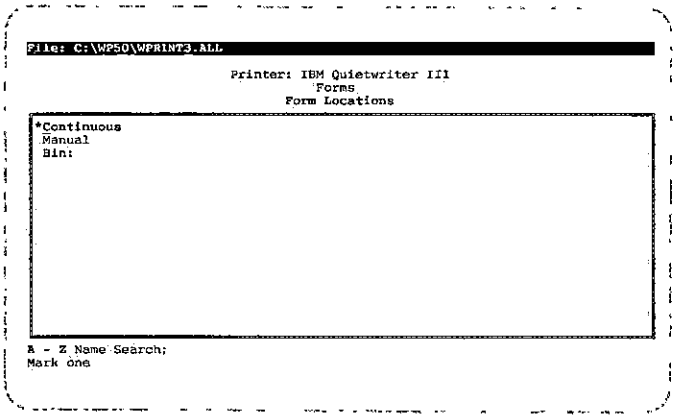
18 Select Forms from the Printer menu to display a table of forms for the Printer.



You can select a bin for a form by moving the cursor to the Location column in the table, and then entering the bin number.

19 Place the cursor on a form you want to assign a bin number, and then press **Right Arrow** (→) until the cursor is in the Location column.

20 Press **Enter** to display a menu of location types.



21 Place the cursor on the Bin: item, press **Enter** and then enter the bin number.

22 Press **Exit** (F7) to return to the forms table.

You may want to add an extra form to the list for each bin, assigning the correct bin number to each form. For details on adding forms, turn to *Forms* in the Printer section of *Reference*.

23 After editing the forms list, press **Quit** (Alt-F7), and then type **y** to save the ALL file.

24 Press **Enter** to use the same filename, and then type **y** to replace the original file on disk with the edited version.

25 Type **y** to exit the Printer program.

Selecting the Sheet Feeder

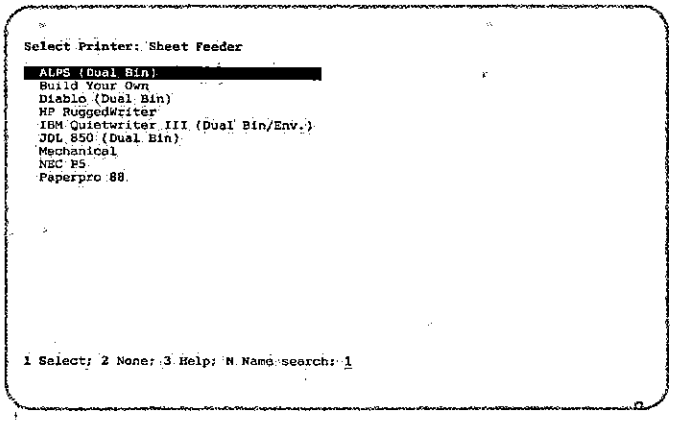
Now that the ALL file has been edited, the final step is to copy the sheet feeder from the ALL file to the PRS file from WordPerfect.

26 Start WordPerfect.

27 Press **Print** (Shift-F7), and then select Select Printer (s) to display the list of printers.

28 Place the cursor on the name of your printer, and then select Edit (3).

29 Select Sheet Feeder (3) from the Edit menu to display a list of sheet feeders in the ALL file.



30 Place the cursor on the name of the new sheet feeder definition, and then press **Enter** to select the definition.

The Helps and Hints about Sheet Feeder text edited in the ALL file is now displayed as a help screen for the sheet feeder.

31 Press **Exit** (F7) to return to the Edit menu, and then press **Exit** again to update the PRS file.

The sheet feeder, along with any new forms table information, is copied to the PRS file. You should now be ready to print from WordPerfect using the sheet feeder attached to your printer.

If the forms information needs to be changed, you can select Forms (4) from the Edit menu to edit the information for each form. The information is changed in the PRS (not the ALL) file.

Substitute Fonts

Each font at the printer is designed to print a particular set of characters. If a character is not available in the current font while printing a document, WordPerfect checks the list of automatic font changes (AFCs) and substitute fonts for a font that includes the character. A substitute font is one that is used by WordPerfect to find a character for printing, *after* it has checked for the character in the AFC list.

For details on automatic font changes, turn to Automatic Font Changes in Applications and Fonts in the Printer section of Reference.

AFCs and Substitute Fonts

WordPerfect always checks the list of AFCs first for a font listed for the WordPerfect character set to which the character belongs. For example, if the character is a bullet (•), then WordPerfect immediately looks for a font selected for the Typographic Symbols character set. If a font is found, then WordPerfect switches to that font and looks for a bullet in the font.

If the bullet is still not found, WordPerfect *stays with the AFC font* until a complete check is done of all the AFCs and substitute fonts. If the character is still not found, then WordPerfect switches back to the original font. A search is done through a substitute font list for the original font. If the search is unsuccessful, then the character is not printed.

Notice that during the search for the character, WordPerfect completely switched to the AFC font and exhausted all the AFC and substitute font sources for that font before switching back to the original font.

Substitute Font Selection

The idea of a substitute font is to supplement characters that cannot be found in the AFC font. Because WordPerfect completely switches to the AFC font while searching for the character, it is a good idea to select the substitute font for the AFC font (instead of the original font).

See Setting up a Substitute Font below for an example of selecting a substitute font.

Displaying a List of Substitute Fonts

A list of substitute fonts can be displayed from the Font menu.

1 Start the Printer program.

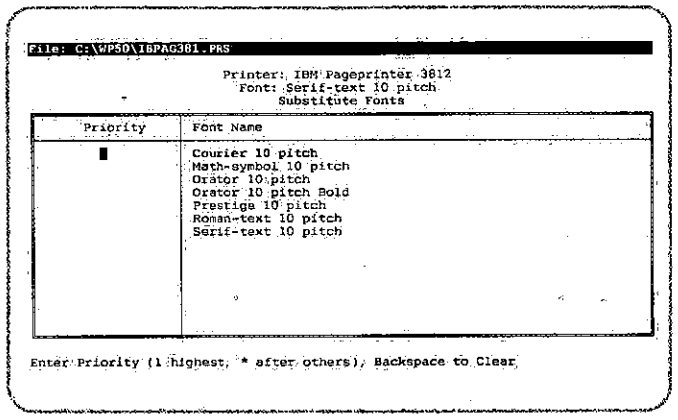
2 Press **Retrieve** (Shift-F10) and enter the name of the PRS file.

Because both AFCs and substitute fonts are selected by WordPerfect when updating or replacing a PRS file, changes to the substitute fonts should be made in the PRS file. If even one substitute font is selected in the ALL file, then WordPerfect does not make selections for substitute fonts.

3 Press **Enter**, with the cursor on the printer name, to display a list of menu names.

4 Select Fonts from the menu to display a list of all the fonts in the file.

5 Select the name of the font you want to edit, and then select Substitute Fonts from the Font menu.

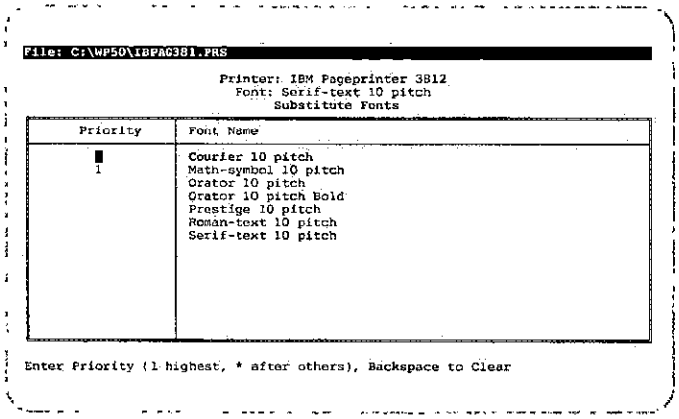


A list of all the fonts in the file is displayed on the screen. You can scroll through the list by using any of the cursor keys or the search keys (F2 and Shift-F2).

Marking a Substitute Font

The first column or the list displays priority numbers, while the second column lists all the fonts in the file. The priority number tells WordPerfect the order in which to search through the fonts for a character.

6 Scroll to the font you want to mark and type a priority number (1-9).



If there is more than one font you want to mark, then continue typing priority numbers. The priority numbers are automatically updated as you make editing changes to the substitute font list. If you want to mark more than 9 fonts, then use an asterisk for marking substitute fonts.

7 When you finish, press **Exit** (F7) four times to return to the Printer menu.

Checking the Substitute Fonts

A recommended way of checking to see if the substitute fonts (and AFCs) have been set up correctly for a font is to use the CHARMAP.TST file included on the Conversion diskette in your WordPerfect 5.0 package.

1 Start WordPerfect.

2 Retrieve the CHARMAP.TST file using **Retrieve** (Shift-F10) or **List Files** (F5).

All the WordPerfect character sets are retrieved into WordPerfect.

3 Press **Font** (Ctrl-F8), and then select Base Font (4).

4 Place the cursor on the name of the font for which you have set up AFCs and substitute fonts, and then press **Enter**.

A code for the font is inserted at the beginning of the test document. At this point, you can either display the document in the preview screen (Shift-F7,6), or send the document to the printer (if you don't have a graphics display card).

In either case, WordPerfect searches through all the AFCs and substitute fonts selected for the printer and displays (or prints) the characters that are found. When you finish with one font, you can delete the font code and test another font, or simply clear the screen with **Exit** (F7).

Clearing a Substitute Font

While in the list of substitute fonts, you can clear (delete) a priority number by placing the cursor on the number and pressing **Backspace**.

If there are other priority numbers in the list, they are automatically updated to reflect the cleared priority number.

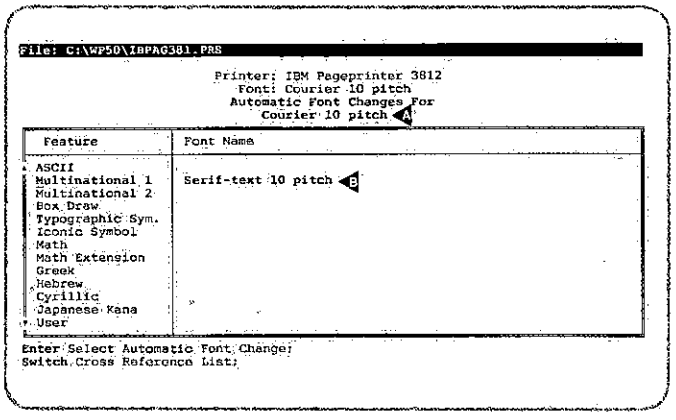
Setting Up a Substitute Font

Setting up a substitute font depends upon what fonts are available in the PRS file, and whether or not the font is suitable for printing with the base font.

For example, a document that contains words from several European languages is being printed with the Courier 10 pitch font on the IBM Pageprinter 3812. While the Courier 10 pitch font contains some characters for the various languages, the Serif-text 10 pitch font (similar to Courier) contains a more complete set of characters.

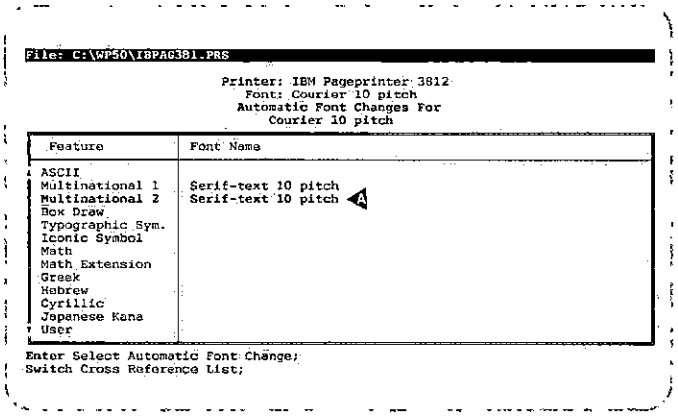
The Serif-text 10 pitch font could be used as an AFC for the Courier 10 pitch font by assigning the font to the Multinational 1 character set.

A COURIER 10 PITCH
B SERIF-TEXT 10 PITCH



The Serif-text 10 pitch font also contains a double underline character from the Multinational 2 character set, and could be assigned as the AFC for that character set.

▲ SERIF-TEXT 10 PITCH



Whenever a character cannot be found while printing a word in another language, WordPerfect checks the AFC for Multinational 1 and then switches to the Serif-text font to print the character. WordPerfect then switches back to the Courier font and continues printing until another multinational character is needed.

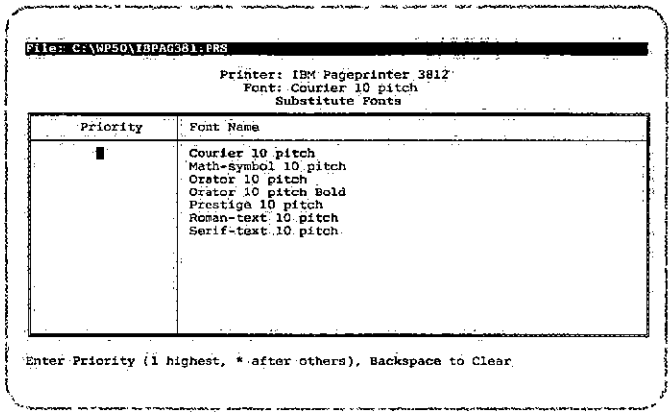
If a double underline character needs to be printed, then WordPerfect checks the AFC list for a font assigned to the Multinational 2 character set. The Serif-text font is found, and WordPerfect switches to that font to print the double underline character.

However, there is another character (the Candrabindu) in the Multinational 2 character set that is found in the Math-symbol 10 pitch font. While the Serif-text font has already been selected for the Multinational 2 character set, the Math-symbol font can be marked as a substitute font for the Serif-text font.

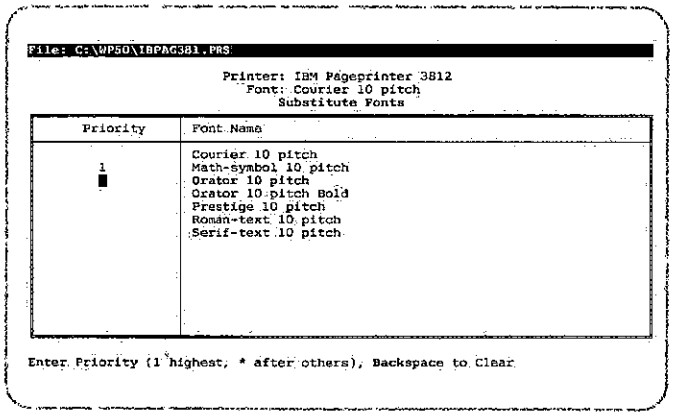
1. Select Fonts from the Printer menu to display a list of fonts in the file.

2. Place the cursor on the name of the font for which you want to select a substitute font (in this case Serif-text 10 pitch), and then press **Enter**.

3 Select Substitute Fonts from the Font menu to display a list of all the fonts in the file.



4 Scroll to the Math-symbol 10 pitch font and type a 1 for the priority number.



5 Press **Exit** (F7) three times to return to the Printer menu.

With the Math-symbol 10 pitch font set up as a substitute font for the Serif-text 10 pitch font, WordPerfect still switches to the Serif-text font whenever a character in the Multinational 2 character set cannot be found in the Courier 10 pitch font.

If the character cannot be found in the Serif-text font (such as the Candrabindu), WordPerfect checks the list of AFCs and substitute fonts for the Serif-text font. The Math-symbol font is found in the substitute font list, and WordPerfect switches to that font (and all its AFCs and substitute fonts) to try and find the character.

If the character is found, it is printed, and WordPerfect returns to the Courier 10 pitch font to continue printing. If the character is not found, WordPerfect returns to the Courier 10 pitch font and searches through the substitute font list for that font.

The search continues through the substitute fonts for the Courier 10 pitch font until the character is found (and printed) or not found (and not printed).

While the search for a character by WordPerfect can lead through many different paths and fonts, understanding how WordPerfect searches through AFCs and substitute fonts will help you to set up the shortest path to any available character at the printer.

Underline

WordPerfect can print underlined text for the current font by switching to a special font with characters that are underlined, or by using the printer's features (e.g., Backspace, Horizontal Motion, Auto Underline) to underline text printed by the current font.

AFCs and Methods

If an underline font is assigned as an automatic font change (AFC) to a base font, then WordPerfect switches to that font whenever text is underlined in a document.

However, most printers do not have underline fonts available, so several methods are provided that can be used by WordPerfect to underline text. When a method is marked (in the PRS or ALL file), then WordPerfect uses that method for underlining when no AFC for the Underline attribute is listed.

PRS and ALL Files

If you decide to underline text in a document by assigning a font as an AFC, then the change should be made to the PRS file. However, be aware that if you ever update the PRS file from the ALL file in WordPerfect, then the change you made to the AFC for Underline will be erased if you let WordPerfect assign new automatic font changes.

If you decide to change the method WordPerfect uses to underline text when an AFC is not available, then the change should be made to the ALL file so that the same method is always available whenever you update the PRS file from the ALL file in WordPerfect.

Automatic Font Change (AFC)

Each font displayed for a printer in the WordPerfect base font list (Ctrl-F8,4) is assigned a list of automatic font changes (AFCs). The AFC list includes an automatic font change for the Underline feature, as well as other font attributes in WordPerfect (e.g., Bold and Redline).

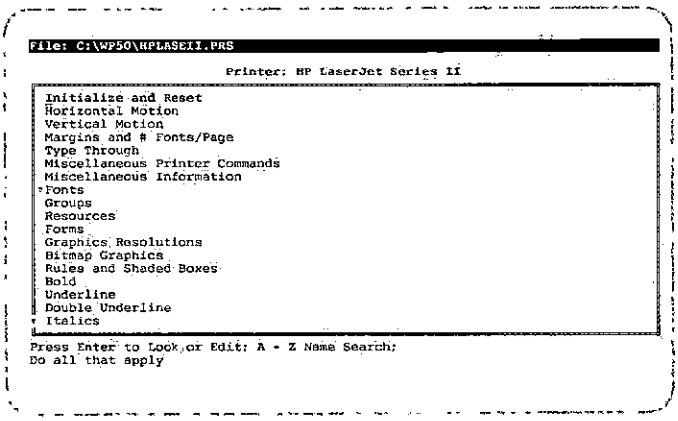
For details on automatic font changes, turn to Automatic Font Changes (AFCs) in Applications or under Fonts in the Printers section of Reference.

If you want to change to a special font for underlined text in a document (e.g., Italics), then you can select the font by editing the PRS file.

1 Start the Printer program.

2 Press **Retrieve** (Shift-F10) and enter the name of the PRS file.

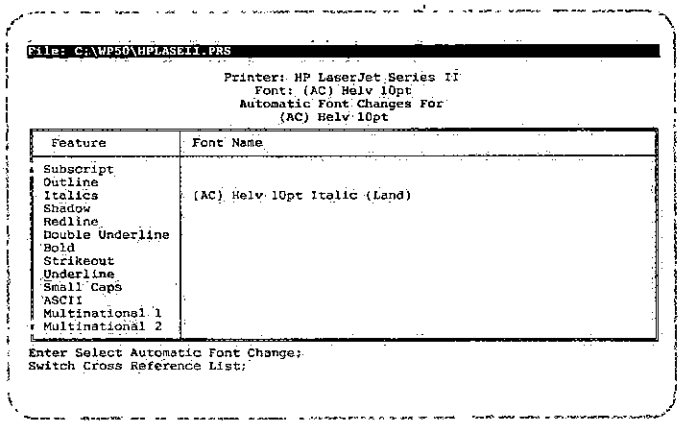
3 Press **Enter**, with the cursor on the printer name, to display the Printer menu.



4 Select Fonts from the Printer menu to display a list of all the fonts available in the PRS file.

5 Place the cursor on the name of the font for which you want to assign an Underline automatic font change, and then press **Enter** to display the Font menu.

6 Select Automatic Font Changes from the Font menu to display a list of all the AFCs for the font.



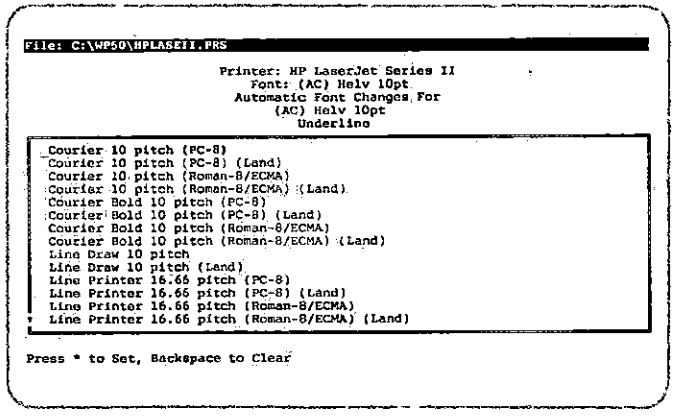
7 Type **un** and then press **Enter** to place the cursor on the Underline attribute.

8 Press **Enter** to display a list of all the fonts in the PRS file.

9 Place the cursor on the font to assign to the Underline attribute.

10 Type an asterisk (*) to mark the font (or press **Enter** and type **y**).

If the list of fonts is longer than can be displayed in the menu, an arrow appears in the lower left corner of the menu border.


File: C:\WP50\HPLASER1.PRS
Printer: HP LaserJet Series II
Font: (AC) Helv 10pt
Automatic Font Changes For
(AC) Helv 10pt
Underline
Courier 10 pitch (PC-8)
Courier 10 pitch (PC-8) (Land)
Courier 10 pitch (Roman-8/ECMA)
Courier 10 pitch (Roman-8/ECMA) (Land)
Courier Bold 10 pitch (PC-8)
Courier Bold 10 pitch (PC-8) (Land)
Courier Bold 10 pitch (Roman-8/ECMA)
Courier Bold 10 pitch (Roman-8/ECMA) (Land)
Line Draw 10 pitch
Line Draw 10 pitch (Land)
Line Printer 16.66 pitch (PC-8)
Line Printer 16.66 pitch (PC-8) (Land)
Line Printer 16.66 pitch (Roman-8/ECMA)
Line Printer 16.66 pitch (Roman-8/ECMA) (Land)
Press * to Set, Backspace to Clear

The cursor keys (e.g., Down Arrow, Screen Down) can be used to scroll the rest of the list until the name of the font is displayed in the menu.

11 Press **Exit** (F7) to return to the AFC list.

With a font selected for the Underline AFC, WordPerfect uses that font each time underlined text appears in a document using the base font.

12 Press **Quit** (Alt-F7), type **y**, and then press **Enter** to use the current name of the PRS file.

13 Type **y** to replace the PRS file on disk with the edited version, and then type **y** again to exit the Printer program.

You can test the Underline automatic font change in WordPerfect by selecting the base font from the Fonts menu (Ctrl-F8,4), pressing **Underline** (F8), typing a line of text, and then sending the text to the printer.

Underline Methods

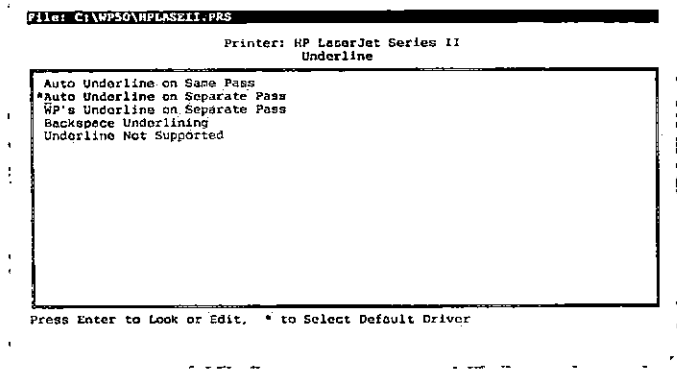
Whenever underlined text appears in a document during a print job, and a font is not selected for an automatic font change (AFC), WordPerfect checks a list of underline methods in the PRS file to find an alternative way to underline text for the current font.

If a method is marked, then WordPerfect uses the information for that method to underline text, unless the SETMETHOD function has been used (see *Multiple Methods* below for details).

Displaying the Underline Methods

If you are not satisfied with the current method used to underline text, you may want to edit the ALL file to change the method.

1. Start the Printer program.
2. Press **Retrieve** (Shift-F10) and enter the name of the ALL file that contains information for your printer.
3. Place the cursor on the name of your printer, and then press **Enter** to display the Printer menu.
4. Type **un** and then press **Enter** to move the cursor to the Underline item, and then press **Enter** to display the Underline menu.


File: C:\WP50\HPLASE2.PRS
Printer: HP LaserJet Series II
Underline
Auto Underline on Same Pass
*Auto Underline on Separate Pass
WP's Underline on Separate Pass
Backspace Underlining
Underline Not Supported
Press Enter to Look or Edit, * to Select Default Driver

A list of four methods is displayed on the screen (plus Underline Not Supported). The Auto Underline methods use the printer's Auto Underline feature to underline text.

For example, the Auto Underline on Second Pass method is marked above for the HP LaserJet Series II. When WordPerfect cannot find an AFC for the Underline attribute, it uses the printer's Auto Underline feature that prints text on one pass and an underline on the second pass of the printhead.

When there is no Auto Underline feature available at the printer, you can still use the WordPerfect Underline on Separate Pass or Backspace Underlining to create an underline for the text. Backspace Underlining should *only* be used when no other method is available.

Editing a Method

Because many printers feature auto underlining, one of the Auto Underline methods is often used to underline text in a document. If your printer includes an Underline On and Underline Off command (check the printer manual), then these commands can be entered for auto underlining.

5 Select an Auto Underline method from the Printer menu to display a menu where the commands for Underline On and Off can be entered.

The Auto Underline method you select depends on whether you want the underline printed on the same pass as the text, or on a separate, second pass.

6 Press **Enter**, type the Underline On command (e.g., [27]"&dD" for the HP LaserJet Series II), and then press **Enter** again.

7 Type the Underline Off command (e.g., [27]"&d@" for the HP LaserJet Series II), and then press **Enter**.

A character value to use for movement and a vertical offset can also be entered for the Auto Underline on Separate Pass method.

8 Press **Exit** (F7) to return to the Underline menu.

9 Type an asterisk (*) to mark the method.

Saving the ALL File

With the underline method marked, and the appropriate information entered, the edited ALL file should then be saved.

10 Press **Quit** (Alt-F7), type **y**, and then press **Enter** to use the same name for the ALL file.

11 Type **y** to replace the original file on disk with the edited version, and then type **y** again to exit the Printer program.

Updating the PRS File

The final step in adding an underline method is to update the PRS file from the ALL file in WordPerfect.

12 Start WordPerfect.

13 Press **Print** (Shift-F7), and then select Select Printer (s).

14 Place the cursor on the name of your printer, and then select Update (7).

If you have edited printer commands in the PRS file, then a "Changes to the .PRS file will be lost. Continue? (Y/N) N" message appears. If you type **y** to continue, then the changes in the PRS file will be replaced by the information in the ALL file. If you type **n**, then the PRS file is not updated, and the new font is not added to the file.

15 Type **y** to copy information from the ALL file to the PRS file (updating).

If you have edited any automatic font changes (AFCs) or substitute fonts in the PRS file, then a "Do you want new Automatic Font Changes? (Y/N) No" and/or "Do you want new Substitute Fonts? (Y/N) No" message appears. If you type **y** to answer either question, then any changes in the PRS file are replaced by the updating done by WordPerfect. If you type **n**, then WordPerfect adds the font definition, but does not change the selections in the PRS file.

16 Type **y** to either question if you want WordPerfect to update the fonts.

WordPerfect does not update AFCs and substitute fonts in the PRS file if they have already been marked in the ALL file. For this reason, it is important to make all your editing changes to AFCs and substitute fonts in the PRS file.

17 Once the updating is completed, press **Exit** (F7) two times to return to the Select Printers list.

18 Place the cursor on the name of your printer, and then press **Enter** to select the printer.

19 Press **Exit** (F7) to return to the WordPerfect document editing screen.

Testing the Underline Method

While in the document editing screen, you can test the underline method by selecting a base font that does not have an Underline automatic font change assigned.

20 Press **Font** (Ctrl-F8), select Base Font (4), and then place the cursor on the name of a base font that does not have an Underline automatic font change assigned.

21 Press **Enter** to select the font.

22 Press **Underline** (F8), type a line of text, and then send the text to the printer.

The printed text should be underlined using the method you selected in the Underline menu. If not, you may want to retrieve the PRS file into the Printer program to make sure that the method is marked, and that the information for the method is entered correctly.

Multiple Methods

While only one underline method can be marked at a time in the PRS or ALL file, information can be entered for one or more methods, and then a method selected in the Select Font command (Load and Select Strings in Font menu) by using the SETMETHOD function.

For example, entering **SETMETHOD(UNDERLINE,WPSEPARATE)** as part of the select font command selects WP's Underline on Separate Pass method for the font, even though the Auto Underline method may be marked (*) in the Underline menu for the printer.

Because WordPerfect continues using the new Underline method until another SETMETHOD command is encountered, you need enter the SETMETHOD command in the Deselect Font string to set the method back to the default method marked (*) in the Underline menu.

For example, if the default method for the printer is Auto Underline on Same Pass, then entering **SETMETHOD(UNDERLINE,AUTOSAME)** for the Deselect Font command sets the Underline method back to Auto Underline on Same Pass when WordPerfect switches to another font.

The SETMETHOD command should only be entered in the Select and Deselect Font command strings, or "garbage" printing will occur. For details on using the SETMETHOD command, turn to *WordPerfect Description Language (WPDL)* in *Appendix*.

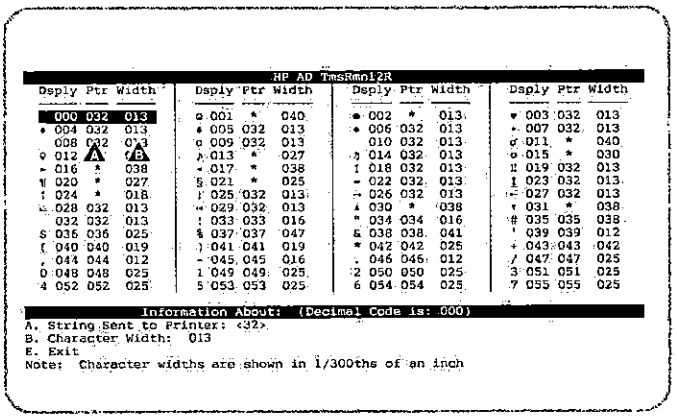
WordPerfect 4.2 Printer Definitions

WordPerfect 4.2 stored all definitions for printers you selected from the ALL file(s) in a file called WPRINTER.FIL. Every time a printer was copied from the ALL file to the WPRINTER.FIL file, a character table for each font assigned to the printer was copied to a separate WPFONT.FIL file.

WordPerfect 4.2 Character Tables

The character table included the complete set of 254 ASCII DOS characters, with a character width and printer command entered for each character in the font. The character tables could be seen and edited by using the WordPerfect 4.2 Printer Definition program.

A PRINTER COMMAND
B CHARACTER WIDTH



For example, the above WordPerfect 4.2 character table was for the Times Roman 12 point soft font for the HP LaserJet printers.

WordPerfect 5.0 Character Maps and PS Tables

When designing WordPerfect 5.0, it was decided to split the character widths and printer codes into two different tables. While WordPerfect needed the printer commands for all fonts in order to print the characters in the font, only character widths for proportionally-spaced fonts were needed.

As a result of this decision, printer commands for the characters in a font are now stored in the WordPerfect 5.0 character map, while character widths are stored in a proportional spacing table. All fonts in a WordPerfect 5.0 ALL file are assigned a character map, while only proportionally-spaced fonts are also assigned a proportional spacing (PS) table.

In addition, the character maps and PS tables are stored with the printer definition in a PRS file designed specifically for your printer, instead of in a separate font file as in WordPerfect 4.2.

If a font is assigned both a character map and PS table, then information for a character needs to be entered in both map and table, or WordPerfect will not preview or print the character.

Conversion Limitations

Because of the remarkable changes made to WordPerfect 5.0 in being able to handle absolute margins, graphics printing, document portability, font information, etc., a complete change has been made in the way WordPerfect stores and accesses printer information needed to support these features.

For many WordPerfect 4.2 users, the change simply means that a new printer definition needs to be selected while installing WordPerfect. A customized PRS (printer resource) file is then created by WordPerfect from an ALL file that contains all the information WordPerfect needs to support the selected printer. The information in the PRS file is often a significant improvement over the information provided with WordPerfect 4.2 for supporting the printer.

However, if you edited a WordPerfect 4.2 printer definition (with PRINTER.EXE) to take advantage of your printer's features, the printer definition *cannot* be converted to a WordPerfect 5.0 format to continue using those features.

For example, if you edited a printer definition to mark redline text with a particular character, you will need to make a similar change to the ALL file in WordPerfect 5.0's Printer Definition program, and then have WordPerfect update your printer's PRS file from the ALL file (see *Redline* in Applications for details).

Font Conversion Program

While a WordPerfect 4.2 printer definition cannot be converted to a WordPerfect 5.0 format, a special Font Conversion program (FC.EXE) has been provided on the Conversion diskette in your WordPerfect 5.0 package that lets you convert the character tables in a WPFONT.FIL file to character maps and proportional spacing tables that can be used in WordPerfect 5.0.

Converting character tables is useful when creating a new definition for a printer or font not currently listed in the ALL file for your printer. After creating the definition, you can then convert the character tables from WordPerfect 4.2 to character maps and proportional spacing tables that can be assigned to a font in WordPerfect 5.0.

Conversion Steps

The process of converting character tables and using the information in WordPerfect 5.0 can be divided into five basic steps.

1. Convert the character tables to character maps and proportional spacing tables that are saved in a new ALL file.
2. Copy the needed character maps and PS tables from the new ALL file to the ALL file where your printer information is stored.
3. Assign the character maps and PS tables to the appropriate font definitions.
4. Edit the character maps and PS tables and save the ALL file.
5. Update the PRS file to include the new information.

The steps are described below, with any notes that may be useful. If you are having difficulty completing a step, then you may want to turn to such headings as *Character Maps*, *Proportional Spacing Tables*, *Fonts*, and *Printers* in Applications for additional details. *Reference* also provides information about each item in the Printer program menus.

Converting the Character Tables

The Font Conversion program is a utility provided in your WordPerfect 5.0 package for converting WordPerfect 4.2 character tables in a WPFONT.FIL file to WordPerfect 5.0 character maps and proportional spacing (PS) tables.

The program saves the printer commands in a character table to a character map, and the character widths to a PS table. The character maps and PS tables are saved in a new ALL file that is created for the maps and tables.

1. Exit any program that you are currently using (e.g., WordPerfect, Printer Definition program), and then return to the DOS prompt.
2. Change to the directory where the WPFONT.FIL file is located that contains the WordPerfect 4.2 character tables you want to convert (e.g., cd c:\wp).
3. Place the Conversion diskette from your WordPerfect 5.0 package into drive A on your computer.
4. Type **a:fc wpfont.fil c:\wp50\new.all** and then press **Enter** to begin converting the character tables.

The "a:fc" starts the Font Conversion program, while "wpfont.fil" indicates the file where the character tables are stored, and "c:\wp50\new.all" indicates the name of the ALL file that should be created to save the new character maps and PS tables.

For this example, the ALL file is named NEW.ALL and saved in the WP50 directory. However, for your own purposes, you can save the ALL file in any directory you wish, using any filename (except the name of an ALL file that already exists).

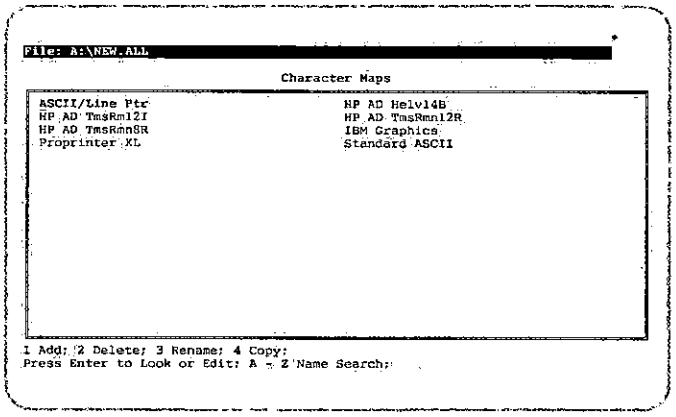
While the Font Conversion program is working, messages are displayed on your screen that indicate the progress of the conversion. When the process is complete, you are returned to the DOS prompt.

Copying the Character Maps and PS Tables

Once the NEW.ALL file has been created, you can retrieve it into the Printer program to copy the new character maps and PS tables to the ALL file where your printer information is stored.

5. Start the Printer program.
6. Press **Character Maps** (F4) to switch to the character map list.

7 Press **Retrieve** (Shift-F10) and then enter **new.all** to retrieve the character maps and PS tables.



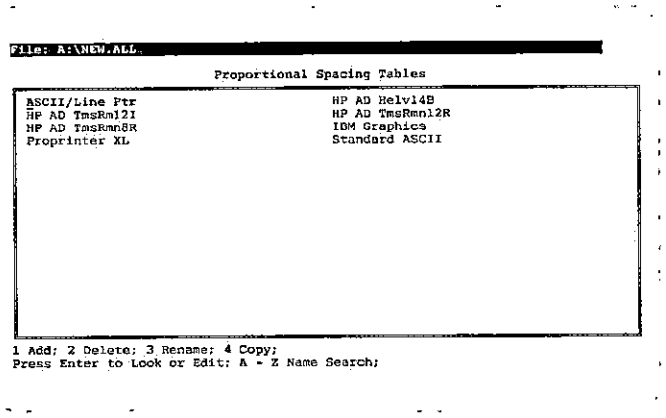
A character map is listed for each font in the original WPFONT.FIL file. While you can view and edit the character maps at this point, the main purpose of the NEW.ALL file is to let you select and copy those character maps (and PS tables) that you need to the ALL file where your printer information is stored.

8 Place the cursor on the name of each character map you want to copy, and type an asterisk (*) to mark the map.

9 Select Copy (4) from the menu at the bottom of the screen, and then enter the name of the ALL file to which you want the maps copied.

The ALL file is the file from which WordPerfect created the PRS file for your printer. If the ALL file came from the Printer 1 diskette, the name of the ALL file is WPRINT1.ALL, from the Printer 2 diskette, WPRINT2.ALL, etc.

10 When the copying is completed, press **PS Tables** (F6) to display a list of all the converted PS tables.



Notice that the PS tables are given the same names as the character maps. While a PS table has been created for each font in the WPFONT.FIL file, only proportionally-spaced fonts need a PS table in WordPerfect 5.0.

Only those PS tables in the list that have a different width for each character should be copied to the ALL file. If a PS table contains the same width for each character, then the font is a fixed pitch font (mono-spaced) and will not need a PS table.

11 Place the cursor on the name of each PS table that you need to copy, and type an asterisk (*) to mark the table.

12 Select Copy (4) from the menu at the bottom of the screen, and then enter the name of the ALL file to which you copied the character maps.

13 Press **Exit** (F7), and then type **n** twice to clear the NEW.ALL file and stay in the Printer program.

Assigning the Character Maps and PS Tables

Once you have copied the character maps and PS tables to the appropriate ALL file, you can retrieve the ALL file to assign the maps and tables to the appropriate font definitions.

You should have already created the font definition(s) in the ALL file before assigning a character map and/or PS table.

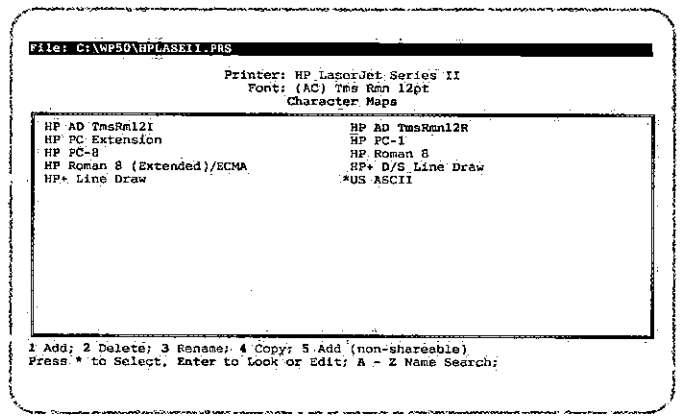
14 Press **Retrieve** (Shift-F10) and enter the name of the ALL file.

15 Place the cursor on the name of your printer, and then press **Enter** to display the Printer menu.

16 Select Fonts from the Printer menu to display a list of all the font definitions created for the printer.

17 Place the cursor on the name of the font you want to assign a character map and/or PS table, and then press **Enter** to display the Font menu.

18 Select Character Map from the Font menu to display a list of all the character maps in the file.


File: C:\WP50\HPLASEII.PRS
Printer: HP LaserJet Series II
Font: (AC) Tms Rmn 12pt
Character Maps
HP AD TmsRmn12I
HP PC Extension
HP PC-8
HP Roman 8 (Extended)/ECMA
HP+ Line Draw
HP AD TmsRmn12R
HP PC-1
HP Roman 8
HP+ D/S Line Draw
*US ASCII
1 Add; 2 Delete; 3 Rename; 4 Copy; 5 Add (non-shareable)
Press * to Select, Enter to Look or Edit; A - Z Name Search:

The character map(s) you copied from NEW.ALL should be listed alphabetically with all the other character maps in the file.

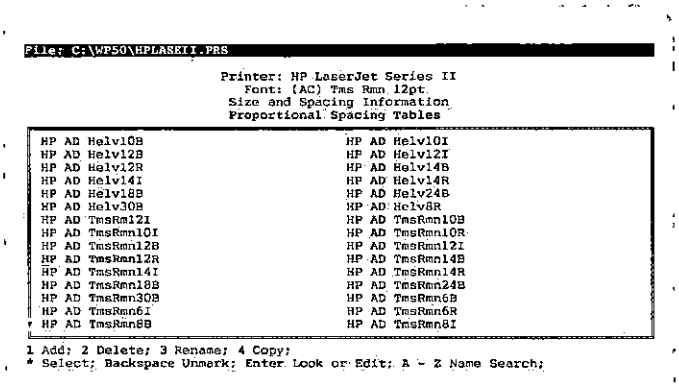
19 Place the cursor on the name of the character map you want to assign to the font definition, and then type an asterisk (*) to mark the map.

20 Press **Exit** (F7) to return to the Font menu.

If the font is proportionally spaced, then you should also select a PS table for the font definition.

21 Select Size and Spacing from the Font menu to display the Size and Spacing Information menu.

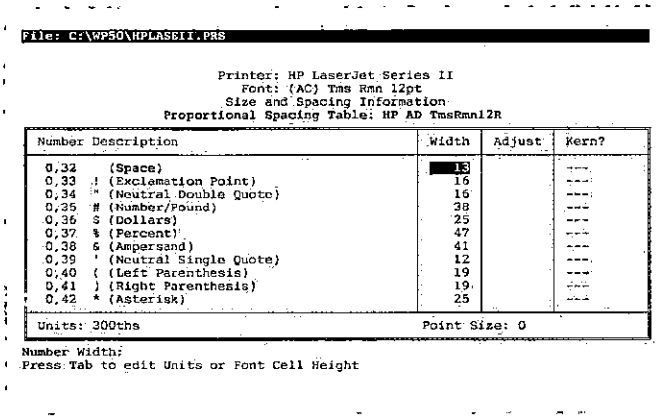
22 Type **pr** and press **Enter** to place the cursor on Proportional Spacing Table, and then press **Enter** again to display all the PS tables in the file.



The PS table(s) you copied from NEW.ALL should be listed alphabetically with all the other PS tables in the file.

23 Place the cursor on the name of the PS table you want to assign to the font definition, and then type an asterisk (*) to mark the table.

24 Press **Enter** to display the PS Table.



While the character widths in the table should be correct, you may need to edit the Units or Point size.

25 Press **Tab** to enter a new Units value, and/or press **Tab** again to enter a Point Size.

The Units are the horizontal spacing units displayed in the Size and Spacing Information menu, while the Point Size is the point size of the font assigned to the table.

26 Press **Exit** (F7) three times to return to the Font menu.

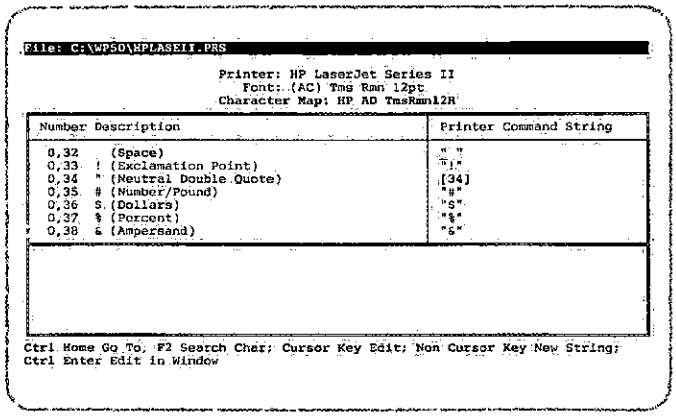
Editing the Character Maps and PS Tables

The widths in the PS table should be correct, and should not need editing. However, the point size of the font needs to be entered at the bottom of the PS table (as indicated above) for the table to be used by WordPerfect.

The Font Conversion program does as much as possible to convert the printer commands in the WordPerfect 4.2 character table to the correct format for the character map in WordPerfect 5.0.

27 Select Character Map from the Font menu to display the list of character maps.

28 Press **Enter** to display the character map selected for the current font.



29 Make any necessary changes, and then press **Exit** (F7) twice to return to the Font menu.

Characters and Decimal Values

A character that can be typed from the keyboard is placed in double quotation marks (e.g., "!") or inserted as a decimal value (e.g., [34]). Decimal values are placed between square brackets ([176]) instead of angle brackets (<176>) as in WordPerfect 4.2.

Any WordPerfect 4.2 printer commands used to create or access characters (e.g., a<D>¨) are converted to the appropriate WPDL command ("a"REPOSITION"¨"). For a list of all the WordPerfect 4.2 printer commands and their WordPerfect 5.0 equivalents, turn to *WordPerfect 4.2 Printer Commands* in *Appendix.*

"Altin" and "Altback" String Variables

The <A> command in WordPerfect 4.2 character tables was used to access characters from an alternate character set (e.g., <A>c).

If there are any <A> commands in the WordPerfect 4.2 character table, then they are converted to a string such as **altin"c"altback**, where the "altin" and "altback" are string variables that represent the printer commands for switching to and back from an alternate character set.

While the "altin" and "altback" strings are automatically added to the character command for you, the printer commands for these strings still need to be entered in the Character Map String Variables. From the character map, press **String Variables** (F9), enter the printer commands for the displayed strings, and then press **Exit** (F7) to return to the character map.

Partially Converted Commands

If a command string for a character is not completely converted, you will need to retrieve the WPFONT.FIL file in into the PRINTER.EXE program from WordPerfect 4.2, and then display the character table that contains the printer string you want converted. Scroll through the character table until the cursor is on the character, and then write down the String Sent to Printer.

Return to the WordPerfect 5.0 Printer Definition program, and then enter the string into the character map in WPDL format. Remember that the characters sent directly to the printer should be placed in double quotation marks, while decimal values should be placed in square brackets (e.g., [27]"&dD"[32]).

Characters and Decimal Values

A character that can be typed from the keyboard is placed in double quotation marks (e.g., "!") or inserted as a decimal value (e.g., [34]). Decimal values are placed between square brackets ([176]) instead of angle brackets (<176>) as in WordPerfect 4.2.

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While the "altin" and "altback" strings are automatically added to the character command for you, the printer commands for these strings still need to be entered in the Character Map String Variables. From the character map, press **String Variables** (F9), enter the printer commands for the displayed strings, and then press **Exit** (F7) to return to the character map.

Partially Converted Commands

If a command string for a character is not completely converted, you will need to retrieve the WPFONT.FIL file in into the PRINTER.EXE program from WordPerfect 4.2, and then display the character table that contains the printer string you want converted. Scroll through the character table until the cursor is on the character, and then write down the String Sent to Printer.

Return to the WordPerfect 5.0 Printer Definition program, and then enter the string into the character map in WPDL format. Remember that the characters sent directly to the printer should be placed in double quotation marks, while decimal values should be placed in square brackets (e.g., [27]"&dD"[32]).

Saving the ALL File

With the editing changes made and the character map(s) and PS Table(s) assigned to the proper fonts, you are ready to save the ALL file.

30 Press **Quit** (Alt-F7), type **y**, and then press **Enter** to use the same filename.

31 Type **y** to replace the file on disk with the edited version, and then type **y** again to exit the Printer program.

Updating the PRS File

The final step in converting and adding character maps and PS tables to WordPerfect 5.0 is to update the PRS file from the ALL file in WordPerfect.

32 Start WordPerfect.

33 Press **Print** (Shift-F7), and then select Select Printer (s).

34 Place the cursor on the name of your printer, and then select Edit (3) from the menu at the bottom of the list.

35 Select Cartridges and Fonts (5) from the Edit menu, and then place the cursor on the appropriate resource and press **Enter** to display a list of cartridges, soft fonts, print wheels, etc.

36 Mark the cartridges, soft fonts, print wheels, etc., you want to add to the PRS file, and then press **Exit** (F7) twice to begin updating.

If you have edited printer commands in the PRS file, then a "Changes to the .PRS file will be lost. Continue? (Y/N) N" message appears. If you type **y** to continue, then the changes in the PRS file will be replaced by the information in the ALL file. If you type **n**, then the PRS file is not updated, and the new font is not added to the file.

37 Type **y** to copy information from the ALL file to the PRS file (updating).

If you have edited any automatic font changes (AFCs) or substitute fonts in the PRS file, then a "Do you want new Automatic Font Changes? (Y/N) No" and/or "Do you want new Substitute Fonts? (Y/N) No" message appears. If you type **y** to answer either question, then any changes in the PRS file are replaced by the updating done by WordPerfect. If you type **n**, then WordPerfect adds the font definition, but does not change the selections in the PRS file.

38 Type y to either question if you want WordPerfect to update the fonts.

WordPerfect does not update AFCs and substitute fonts in the PRS file if they have already been marked in the ALL file. For this reason, it is important to make all your editing changes to AFCs and substitute fonts in the PRS file.

39 Once the updating is completed, press **Exit** (F7) to return to the Select Printers list.

40 Place the cursor on the name of your printer, and then press **Enter** to select the printer.

41 Press **Exit** (F7) to return to the WordPerfect document editing screen.

The conversion process is completed and you can test the new fonts, maps, and tables by sending to the printer one of the .TST files found on the Conversion diskette in your WordPerfect 5.0 package.

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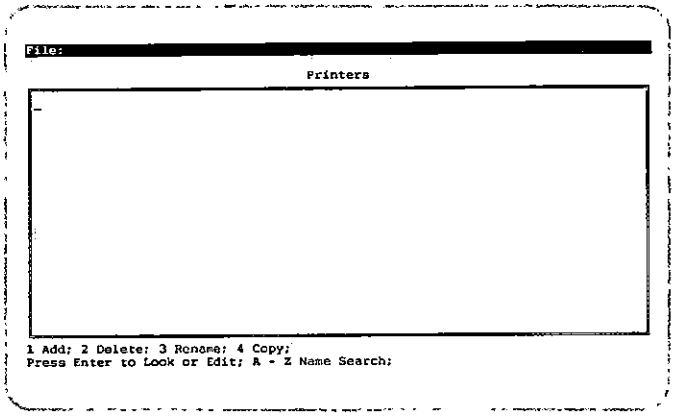
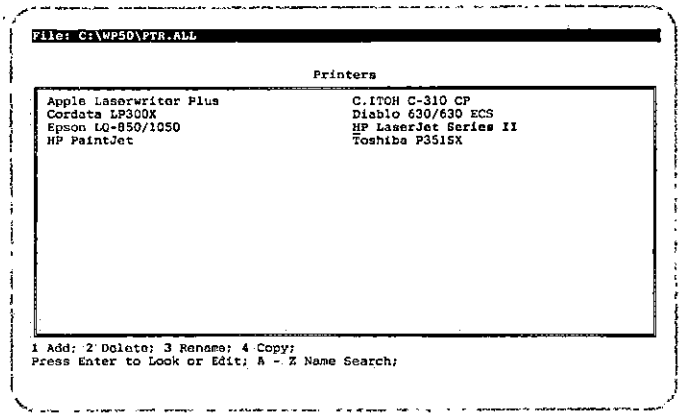
When you first start the Printer program, the Printers menu is displayed.

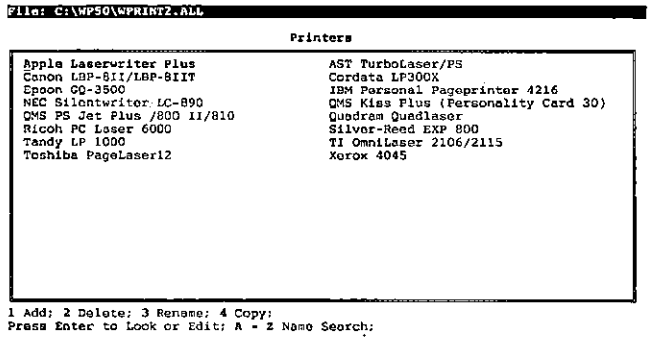


The menu is empty, unless you have included the filename of a PRS or ALL file when typing **ptr** to start the program (e.g., **ptr hplaseii.prs**).

With the Printers menu displayed, you can press **Retrieve** (Shift-F10) and enter a filename to retrieve a PRS or ALL file into the Printer program. Retrieving a PRS file displays the name of the printer definition in the file.



Retrieving an ALL file displays a list of names for all the printer definitions in the file.



If a "Convert to new format? (Y/N) N" message appears when retrieving a PRS or ALL file, then the file was created under an older version of the Printer program than the one currently on your screen. In most cases, you will want to type y to convert the file. However, once the file is converted and then saved out, you may not be able to retrieve it again into the older version of the Printer program.

Options at the bottom of the menu let you add, delete, rename, and copy printer definitions. Pressing **Enter** with the cursor on a printer name displays a list of menus that can be used to edit the information in the printer definition.

There are two sets of menus available—one for PostScript printers, and one for all other printers (Standard printers). While the list for a Standard printer includes more items than the list for a PostScript printer, the information in the menus is organized exactly the same for each type of printer (except where noted in Reference).

Standard printers are also referred to as Escape sequence printers because the escape command [27] is often used to send information (strings) to the printer.

When you finish editing the information, you can press **Exit** (F7) to return to the Printers menu, and then press **Exit** again to save the changes and exit the Printer program or clear the program for retrieving another file.

Add

If one or more printers are listed when you select Add, place the cursor on the name of the printer definition you want to use as a pattern and press **Enter**, or press **Ctrl-Enter** to create a new (default) printer definition. If you select a listed printer as a pattern, then simply enter a name for the printer. If you create a new printer definition, then select Standard (1) or PostScript (2) after entering a name for the printer.

If the Printers menu is empty, then the Printer program assumes you are creating a new PRS or ALL file. Select Add (1), enter a printer name, and then select Standard (1) or PostScript (2), and then enter a printer name.

A single name in the Printers menu indicates to WordPerfect that the file type is a PRS file. If you include more than one printer name, then WordPerfect changes the type to an ALL file. While ALL files can be used as a resource for creating PRS files, they cannot be used by WordPerfect for printing.

Delete

A printer can be deleted from the file by placing the cursor on the name of the printer definition, selecting Delete (2), and then typing **y**.

Rename

A printer can be renamed by placing the cursor on the name of the printer definition, selecting Rename (3), and then entering the new name.

PRS files

The Additional Printers list in WordPerfect (Shift-F7) displays the names of the printer definitions in the ALL files. When selecting a name from the list to create a PRS file, the name is copied to the PRS file exactly as it appears in the list (and in the ALL file).

Once the PRS file is created, it is added to the Select Printers list in WordPerfect. By selecting Edit (3) from the Select Printers menu, an Edit menu is displayed that lets you add more fonts or cartridges, or select another sheet feeder definition, for the printer.

As soon as you select Cartridges and Fonts (5) or Sheet Feeder (3) from the Edit menu, WordPerfect tries to find the ALL file from which the PRS file was created by matching the printer name in the PRS file with one that exists in an ALL file. If you have changed the name of the printer in the PRS file (by using Rename from this menu), then WordPerfect will not be able to find the original printer in any of the ALL files, and an error message will be displayed indicating that WordPerfect cannot find the ALL file.

For this reason, you should not rename the printer displayed in this menu when editing a PRS file, or WordPerfect will not be able to update the PRS file with new information from the ALL file.

If you want to change the name listed for a PRS file, then use Name (1) on the Select Printers Edit menu in WordPerfect (Shift-F7,s,3). The name edited with this option is displayed in the Select Printers menu in WordPerfect, and is saved in the WP{WP}.SET file that contains all the default settings for your copy of WordPerfect.

ALL files

If you are editing an ALL file, it is a good idea to avoid renaming the printer whenever possible if a PRS file has already been created from the printer definition, or WordPerfect will not be able to update the PRS file from the ALL file.

In addition, the Printer Support group in the Customer Support department of WordPerfect Corporation uses the printer name (as it is shipped in the ALL file) to help you identify a printer definition that may need to be corrected. If you have changed the name, then it becomes very difficult to find the correct definition.

Copy

Copy lets you add a printer definition in the current Printers menu to another PRS or ALL file.

After selecting Copy (4), enter the name of the PRS or ALL file to which you want the printer definition copied. The printer definition is appended to the file, along with any character maps, PS tables, and typefaces selected (marked) for the fonts in the current printer. If there are any printers, character maps, PS tables, or typefaces by the same name in the destination file, they are replaced by the incoming definitions.

You can create a new file for the printer definition by selecting Copy (4) and entering a new filename. The file is created, and the printer is copied to it.

When entering a filename, you can include a complete path.

Copying multiple definitions

If you want to copy more than one printer definition at a time, mark each printer name with an asterisk before selecting Copy. You can mark (or unmark) all the printer names in the list by pressing **Mark** (Alt-F5).

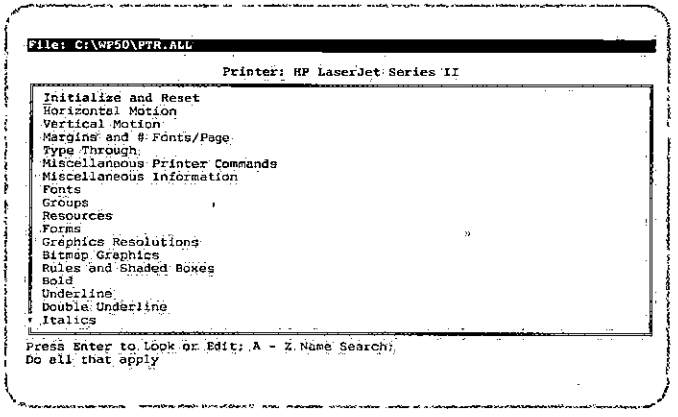
ALL files

Because an ALL file is simply a printer file with more than one printer listed, appending a printer definition to a PRS file (using Copy) converts the PRS file to an ALL file. Once the PRS file is converted, it can no longer be used in WordPerfect for printing.

If you accidentally convert a PRS file to an ALL file, retrieve the PRS file into the Printer program, use Delete (2) to remove the unwanted printer definition, and then save the edited file with **Exit** (F7), replacing the original file on disk.

Standard Printers

When you select a Standard printer from the Printers menu, a list of categories is displayed that lets you edit the printer definition information.



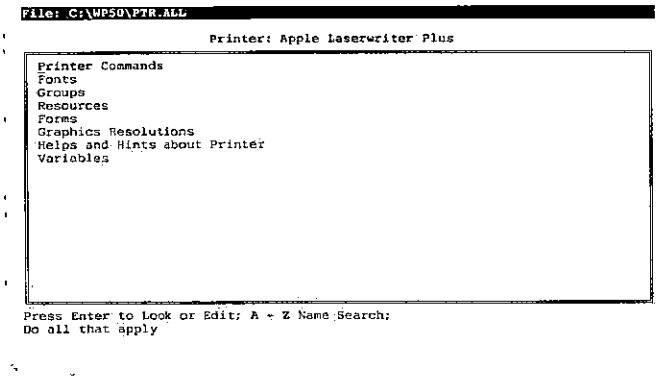
The arrow in the lower left corner of the menu border indicates that there are more menus listed. The names of these categories can be displayed by using the cursor keys to scroll through the list.

The categories are listed in the order in which you would use them when defining a printer. Those at the beginning of the list are more critical to WordPerfect than those at the end of the list.

You can display the menu for a category by placing the cursor on the name and then pressing **Enter**. The pages that follow in Reference provide complete details about each category in the list.

PostScript Printers

When you select a PostScript printer from the Printers menu, a list of categories is displayed that lets you edit the printer definition information.



Because the list of categories has been designed for one type of printer (PostScript), there are fewer menus listed, and Printer Commands appears as a category instead of Initialize and Reset Printer. While the menus for both categories serve the same purpose, the Printer Commands menu has been specifically designed for PostScript printers.

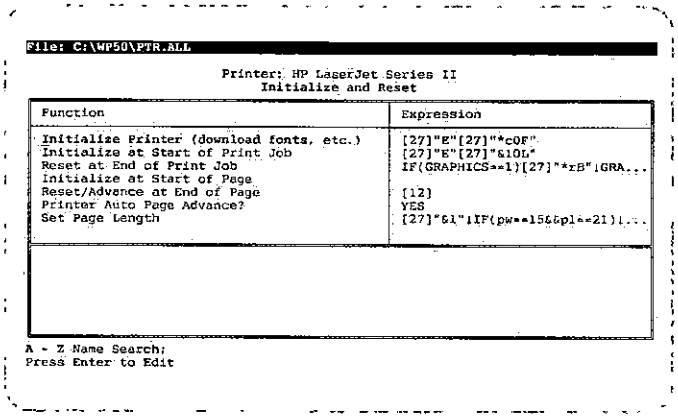
The rest of the categories for both types of printers are exactly the same (except where noted in Reference).

The categories are listed in the order in which you would use them when defining a printer. Those at the beginning of the list are more critical to WordPerfect than those at the end of the list.

You can display a menu for a category by placing the cursor on the name and then pressing **Enter**. The pages that follow in Reference provide complete details about each category in the list.

Initialize and Reset (Standard Printers)

When you select Initialize and Reset from the Printer menu, a menu is displayed that lists commands sent to the printer at the beginning (initialize) and end (reset) of every print job and page.



Select an item from the menu, and then enter the appropriate commands. For example, you may want to enter a command to select an emulation mode when the printer is initialized, or initialize and reset perforation skip at the beginning and end of each print job.

When you finish, press **Exit** (F7) to return to the Printer menu.

Initialize Printer (prepare to download fonts, etc.)

Enter a command string that should be sent to the printer when Initialize Printer is selected from the Print menu in WordPerfect. The string can include instructions to select a character set (French, line draw, italics, etc.), prepare the printer to receive downloadable fonts, or set an emulation mode.

These commands stay with the printer until the printer is turned off or a command from another program is sent to reset or delete them.

Initialize at Start of Print Job

Enter a command string that should be sent to the printer at the beginning of a print job. The command string can include instructions to shift into a particular emulation or disable perforation skip.

Reset at End of Print Job

Enter a command string that restores the printer to its default settings at the end of a print job. General reset commands should *not* be entered if they destroy downloaded soft fonts or overlays, or cause the printer to ignore information that is already at the printer.

Initialize at Start of Page

Some printers clear certain printing conditions after every form feed (page break). A command string can be entered here that resets those conditions at the beginning of each new page.

Reset/Advance at End of Page

Enter a command string to reset the printer for the next page. For example, some printers need a form feed command sent at the end of the page to set the next page in place for printing.

Printer Auto Page Advance?

Enter **yes** if the Reset/Advance at End of Page command advances the printhead to next page (i.e., WordPerfect needs to send a form feed to "kick" the page out of the printer). Enter **no** to have WordPerfect advance to the next page using the printer's vertical motion driver.

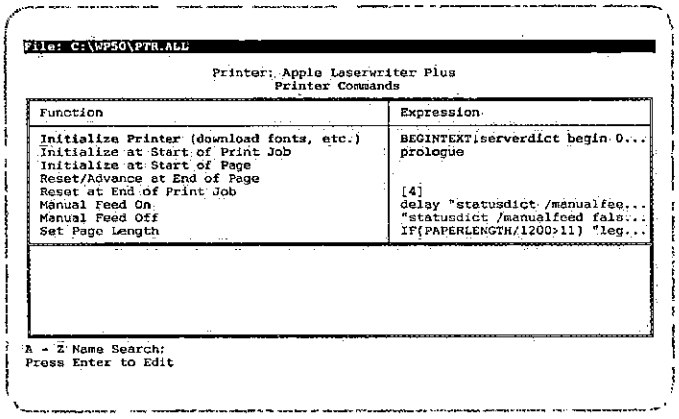
Set Page Length

Enter a command string that sets the length of the non-inserted edge of a form. Because several sizes of forms may be inserted in a printer, you may need to create an "if-then-else" statement using the IF, ELSE, ELSEIF, and ENDIF conditionals that cover all the settings available for the printer.

WordPerfect stores the page length at print-time in 1200ths of an inch in the PAPERLENGTH variable. For example, if a page length of 11 inches needs to be sent to the HP LaserJet Series II in 6 lpi (lines per inch), a **[27] "&l" ASCII(PAPERLENGTH/200) "P"** command could be entered that would divide 13200 (which is 11*1200) by 200 to send a length of 66 lines (at 6 lpi) to the printer.

Printer Commands (PostScript Printers)

When you select Printer Commands from the Printer menu, a menu is displayed that lists commands used by WordPerfect to control PostScript printers.



Select an item from the menu, and then enter the appropriate commands. When you finish, press **Exit** (F7) to return to the Printer menu.

Initialize Printer (prepare to download fonts, etc.)

Enter a command string that should be sent to the printer when Initialize Printer is selected from the Print menu in WordPerfect. The string should exit the server loop so that soft fonts can be loaded into the printer, and also include the correct password if the password has been changed from its default setting of zero (0).

These commands stay with the printer until the printer is turned off or a command from another program is sent to reset or delete them.

Initialize at Start of Print Job

Enter a command string that should be sent to the printer at the beginning of a print job. These commands should include PostScript routines to be used during the print job.

Initialize at Start of Page

Because PostScript printers clear certain printing conditions after every page break, you may want to enter a command string here that resets those conditions at the beginning of each new page. This command is normally left blank.

Reset/Advance at End of Page

Enter a command string that you want to send at the end of each page. This command is normally left blank.

Reset at End of Print Job

Enter a command string that you want to send at the end of a print job. A Ctrl-D (^D) character is normally entered to single the end of a print job. The ^D is a PostScript command that clears the buffer to prepare the printer for the next print job.

Manual Feed On

Enter a command string that turns on manual paper feeding.

Manual Feed Off

Enter a command string that turns off manual paper feeding or select the default paper tray.

Set Page Length

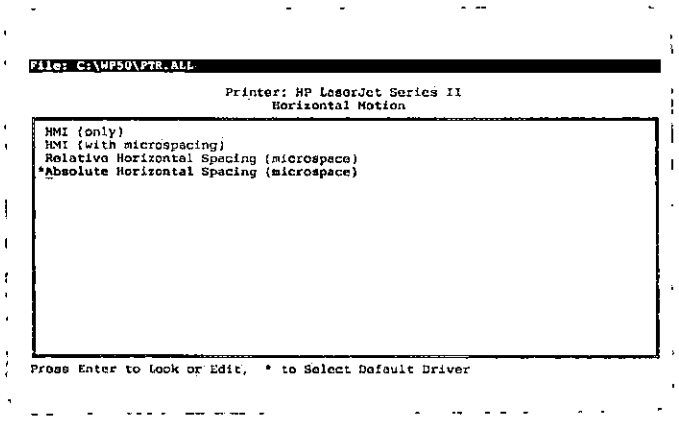
Enter a command string that sets the image size of the current form. Because several sizes of forms may be inserted in a printer, you may need to create an "if-then-else" statement using the IF, ELSE, ELSEIF, and ENDIF conditionals that covers all the image sizes available for the printer.

WordPerfect stores the page length at print-time in 1200ths of an inch in the PAPERLENGTH variable, and the page width at print-time in 1200ths of an inch in the PAPERWIDTH variable.

For example, if a page length is 11 inches, the **IF(PAPERLENGTH/1200>11 "legal" ELSE "letter" ENDIF** command would send the "letter" string to the printer because the paper length of 13200 (11*1200) divided by 1200 gives a number (11) which satisfies the requirement that the result be less than or equal to 11.

Horizontal Motion

When you select Horizontal Motion from the Printer menu, the following menu is displayed that lists the four basic methods used to position the printhead horizontally on the page.


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Horizontal Motion
HMI (only)
HMI (with microspacing)
Relative Horizontal Spacing (microspace)
*Absolute Horizontal Spacing (microspace)
Press Enter to Look or Edit, * to Select Default Driver

Check the printer manual to determine which method is used by your printer, mark the appropriate method with an asterisk, and then press **Enter** and fill in the requested information. When you finish, press **Exit** (F7) to return to the Printer menu.

HMI Printers

There are two categories of printers that use the HMI (Horizontal Motion Index) method of horizontal motion for the printhead.

For printers that always use the HMI value for all characters, space, and backspaces, select HMI (only) from the Horizontal Motion method and fill in the appropriate information. For printers that always used the HMI method for mono-spaced fonts (fixed pitch), but only use HMI for space and backspaces with proportionally-spaced fonts, select HMI (with microspacing from the Horizontal Motion menu) and fill in the appropriate information.

Multiple Methods

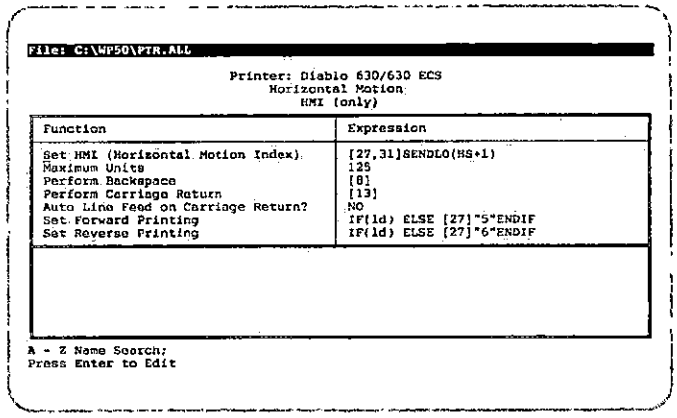
For some printers, the method of horizontal motion may change from font to font (e.g., many Epson dot matrix printers).

Enter the commands for each method used by the printer, and then mark the method you want WordPerfect to use (in the Horizontal Motion menu) until it is told otherwise (default method). In the Select Font command (Load and Select Strings) for the font, you can then use the SETMETHOD function to select an alternate method, and then set the method back to the default in the deselect font command string.

The horizontal motion units are entered in the Size and Spacing Information menu with each font because the units may vary from font to font on a printer.

HMI (only)

After selecting HMI (only) from the Horizontal Motion menu, the following menu is displayed.



Commands entered in this menu let WordPerfect perform horizontal motion indexing (HMI) for a printer. Under HMI, the printer is given a horizontal motion index (character width), after which all characters, spaces, and backspaces sent to the printer are printed at that width. Text may be printed at any pitch by using the appropriate index. In order to vary character spacing within text (proportional spacing), the index is changed for each width change.

HMI values are listed in fractional terms of the printer motion units. For example, because the Diablo 630 printer motion units are listed in 1/120ths of an inch, the HMI value for 10 pitch would be entered as 12.

Set HMI (Horizontal Motion Index)

Enter a command string that selects the correct character width (index). The horizontal spacing variable, HS, should be used for the print-time width. At print-time WordPerfect sets HS at every width change.

For example, the command **[27,31] SENDLO(HS+1)** could be used by WordPerfect to select the correct HMI at print-time on the Diablo 630 printer. If the Maximum Units value (listed in this menu) is greater than 255, use the SENDLOHI command (or an equivalent) instead of the SENDLO command.

If the printer needs the ASCII equivalent of the binary value, use the ASCII variable.

Maximum Units

Enter the maximum HMI value the printer supports (usually 255 or less).

Perform Backspace

Enter a command string that moves the printhead back (left) the width of the current HMI setting. The value **[8]** is normally entered. If the printer does not have a backspace command that moves according to the last HMI setting, leave this command blank.

Perform Carriage Return

Enter a command string that moves the printhead to the left-most printing position. The value **[13]** is normally entered.

Auto Line Feed on Carriage Return?

Enter **yes** if the printer automatically performs a line feed with each carriage return, otherwise, enter **no**. The current switch settings in the printer normally set the automatic line feed. Refer to the printer manual for the location of the switches and a description of each switch setting.

If at all possible, set the printer so that an automatic line feed is *not* done with each carriage return. With the printer's automatic line feed feature on, it becomes much more difficult to control the printing process correctly.

Set Forward Printing

Daisy wheel printers that have no automatic bi-directional printing capabilities need to have a command string entered here that sets left-to-right printing. This option is useful, along with Set Reverse Printing, in allowing WordPerfect to print forward and backward on alternate printhead passes (bi-directional printers only).

If a command is entered here, then commands for Set Reverse Printing and Perform Backspace must also be entered.

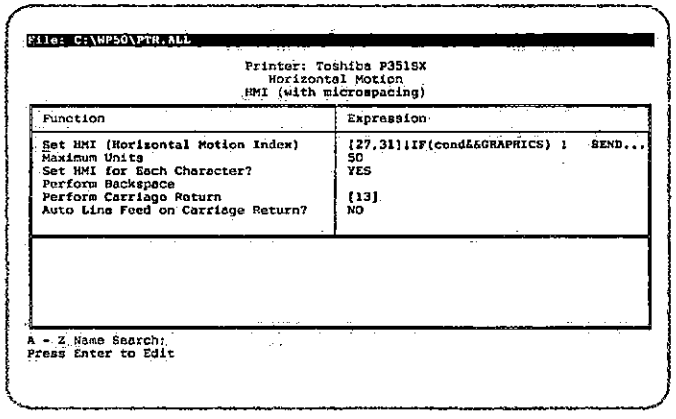
Set Reverse Printing

Daisy wheel printers that have no automatic bi-directional printing capabilities need to have a command string entered here that sets right-to-left printing. This option is useful, along with Set Forward Printing, in allowing WordPerfect to print forward and backward on alternate printhead passes (bi-directional printers only).

A command must be entered here if one has been entered for Set Forward Printing.

HMI (with microspacing)

After selecting HMI (with microspacing) from the Horizontal Motion menu, the following menu is displayed.



Commands entered in this menu let WordPerfect perform horizontal motion indexing (HMI) for characters and relative horizontal movement (microspacing) for spaces and width adjustments (e.g., kerning).

Select this method for horizontal motion if proportional spacing can be turned on at the printer by sending a code, and (after the code is sent) if the HMI setting no longer affects character widths (only spaces and backspaces). Characters print a lot faster and smoother than with the HMI (only) method because every character does not have to be positioned individually.

In documentation for earlier versions of WordPerfect, printers with both microspace and HMI capabilities were called MSHMI printers.

Set HMI (Horizontal Motion Index)
Enter a command string that selects the correct character width (index). The horizontal spacing variable, HS, should be used for the print-time width. At print-time WordPerfect sets the HS at every width change.

For example, the [27,31] SENDLO(HS+1) command could be entered to select the correct HMI at print-time on the Diablo 630 printer. If the Maximum Units value (listed below) is greater than 255, use the SENDLOHI command (or an equivalent) instead of the SENDLO command.

Maximum Units
Enter the maximum HMI value the printer supports (usually 255 or less).

Set HMI for Each Character?
Enter **yes** if the HMI value should be sent to the printer for each character, otherwise, enter **no**.

Perform Backspace
Enter a command string that moves the printhead back (left) the width of the current HMI setting. The value [8] is normally entered. If the printer does not have a backspace command that moves according to the last HMI setting, leave this command blank.

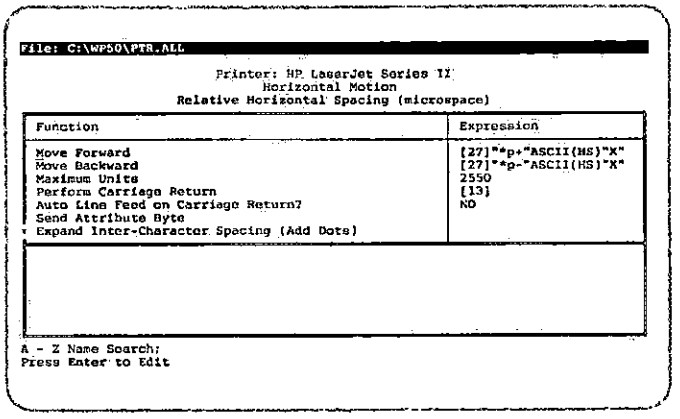
Perform Carriage Return
Enter a command string that moves the printhead to the left-most printing position. The value [13] is normally entered.

Auto Line Feed on Carriage Return?
Enter **yes** if the printer automatically performs a line feed with each carriage return, otherwise, enter **no**. The current switch settings in the printer normally set the automatic line feed. Refer to the printer manual for the location of the switches and a description of each switch setting.

If at all possible, set the printer so that an automatic line feed is *not* done with each carriage return. With the printer's automatic line feed feature on, it becomes much more difficult to control the printing process correctly.

Relative Horizontal Spacing (microspace)

After selecting Relative Horizontal Spacing (microspace) from the Horizontal Motion menu, the following menu is displayed.



Commands entered in this menu let WordPerfect perform relative horizontal spacing (microspacing) for a printer. Under relative microspacing, every character is printed at a designated width, but the printhead can be moved (spaced) anywhere relative to its current position.

Graphics motion commands can usually be used to perform relative horizontal spacing. The motion is in increments of the printer's horizontal motion units.

Move Forward

Enter a command string that moves the printhead forward (right) a specified number of microspace units. At print-time, WordPerfect stores in variable HS the number of units the printer should move.

For example, the **[27]"*p+"ASCII(HS)"X"** command could be entered to move the printhead forward on an HP LaserJet Series II printer.

Move Backward

Enter a command string that moves the printhead backward (left) a specified number of microspace units. At print-time, WordPerfect stores in variable HS the number of units the printer should move.

For example, the **[27]"*p-"ASCII(HS)"X"** command could be entered to move the printhead backward on an HP LaserJet Series II printer.

Maximum Units

Enter the maximum number of microspace units used by the printer for a single relative horizontal movement. The maximum value is usually the width of the platen or largest useable paper size multiplied by the printer motion units.

Perform Carriage Return

Enter a command string that moves the printhead to the left-most printing position. The value **[13]** is normally entered.

Auto Line Feed on Carriage Return?

Enter **yes** if the printer automatically performs a line feed with each carriage return, otherwise, enter **no**. The current switch settings in the printer normally set the automatic line feed. Refer to the printer manual for the location of the switches and a description of each switch setting.

If at all possible, set the printer so that an automatic line feed is *not* done with each carriage return. With the printer's automatic line feed feature on, it becomes much more difficult to control the printing process correctly.

Send Attribute Byte

For printers that require an attribute byte with each character sent, enter a command string here that provides the attribute information. The attribute byte can use the built-in variables to specify items such as how hard to strike the character, how far to move the printhead, and how far to move the ribbon.

Expand Inter-Character Spacing (Add Dots)

For printers that have an inter-character space setting feature that performs inter-character spacing more smoothly than moving the printhead after each character, enter a command string that sets the number of spaces (dots) added to each character subsequently printed. The print-time value is stored by WP in variable HS.

This feature is not currently implemented in WordPerfect.

Maximum Inter-Character Expansion (Number of Dots)

For printers that have inter-character space setting feature, enter the printer's maximum number of spaces (dots) that can be added to each character.

This feature is not currently implemented in WordPerfect.

Absolute Horizontal Spacing (Microspace)

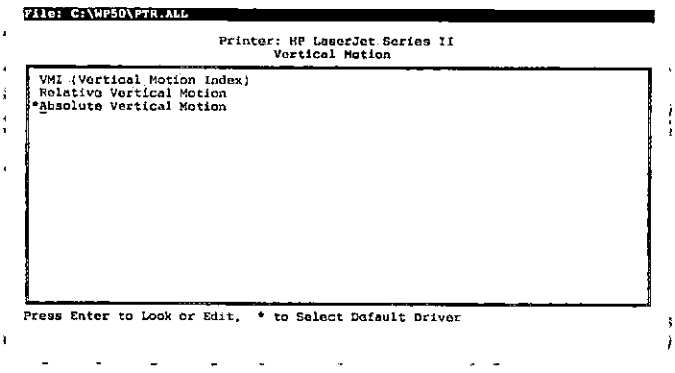
This menu lists printer command strings for performing absolute horizontal microspacing. Under absolute microspacing, the horizontal motion of the printhead is measured as an offset from the left edge of the page rather than from the current printhead position (as in relative microspacing).

When you select Absolute Horizontal Spacing (microspace) a second menu is displayed for entering a command that moves the printhead to the specified horizontal position. At print-time WP stores the position to which the printer should move in the variable XPOS. The XPOS motion is in increments of the printer's horizontal motion units.

For example the command **[27] "*p" ASCII(XPOS) "X"** could be entered to move the cursor to the specified horizontal position on an HP LaserJet Series II printer.

Vertical Motion

When you select Vertical Motion from the Printer menu, a menu is displayed that lists the three basic methods used to position the printhead vertically on the page.


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Vertical Motion
VMI (Vertical Motion Index)
Relative Vertical Motion
*Absolute Vertical Motion
Press Enter to Look or Edit, * to Select Default Driver

Check the printer manual to determine which method is used by your printer, mark the appropriate method with an asterisk, and then press **Enter** and fill in the requested information. When you finish, press **Exit** (F7) to return to the Printer menu.

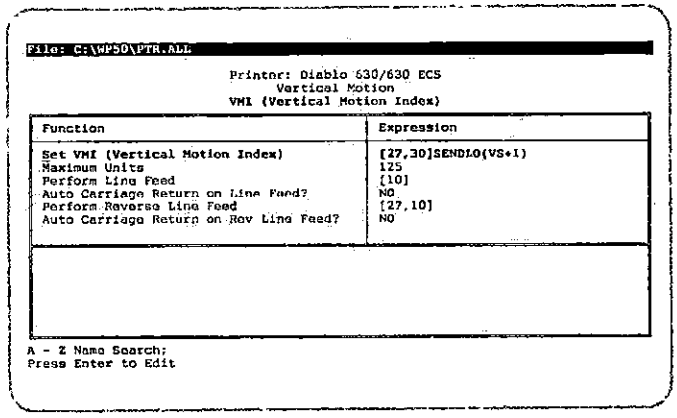
If more than one method is available for your printer, select the preferred method.

While the vertical motion for the printer is set in this menu, vertical printing *resolution* is set in each font's Size and Spacing Information menu for text printing, and in the printer's Graphics Resolution screen for graphics printing.

The vertical motion units are entered in the Size and Spacing Information menu with each font because the units may vary from font to font on a printer.

VMI (Vertical Motion Index)

After selecting VMI (Vertical Motion Index) from the Vertical Motion menu, the following menu is displayed.



Commands entered in this menu let WordPerfect perform Vertical Motion Indexing (VMI) for a printer. Under VMI the printer is given a line height (vertical motion index), after which each line feed advances the printhead by that height. Text may be printed with any number of lines per inch (within the vertical motion resolution) by using the appropriate index. The index may be explicitly changed from line to line.

Set VMI (Vertical Motion Index)

Enter a command string that sets the line height (index) for line feeds and reverse line feeds. The vertical spacing variable, VS, should be used for the print-time line height. At print-time WP sets VS at every line height change.

For example, the **[27,30] SENDLO(VS+1)** command could be entered to set the line height on a Diablo 630 printer. If the Maximum Units value (listed below) is greater than 255, use the SENDLOHI command (or an equivalent) instead of the SENDLO command.

If the printer needs the ASCII equivalent of the binary value, use the ASCII variable.

Maximum Units

Enter the maximum VMI value the printer supports (usually 255 or less).

Perform Line Feed

Enter a command string that moves the printhead down (by the current VMI) to the next line.

Auto Carriage Return on Line Feed?

Enter **yes** if the printer automatically performs a line feed with each carriage return, otherwise, enter **no**. The current switch settings in the printer normally set the automatic line feed. Refer to the printer manual for the location of the switches and a description of each switch setting.

Perform Reverse Line Feed

Enter a command string that moves the printhead up (by the current VMI) to the previous line.

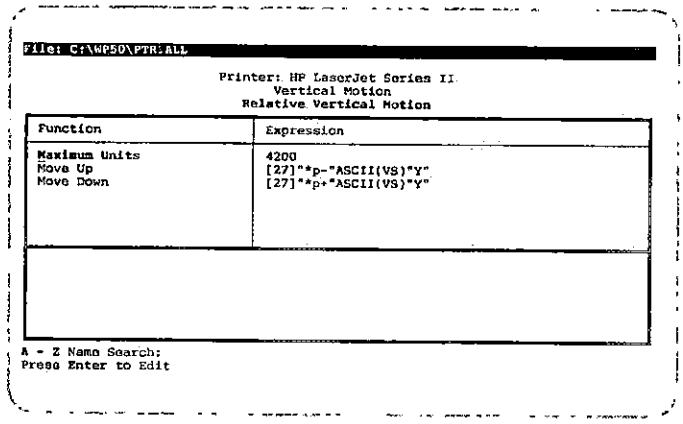
If a command is not entered here, then WordPerfect will not be able to reverse the paper vertically. The Print Super/Subscripts, Advances, Graphics in Top-to-Bottom Order item should be marked in the Miscellaneous Information menu for the printer if this command is left blank.

Auto Carriage Return on Rev Line Feed?

Enter **yes** if the printer automatically performs a carriage return with each reverse line feed, otherwise, enter **no**.

Relative Vertical Motion

After selecting Relative Vertical Motion from the Vertical Motion menu, the following menu is displayed.



Commands entered in this menu let WordPerfect perform vertical motion relative to the printhead position in multiples of the printer's vertical motion units.

Maximum Units
Enter the maximum number of vertical units for a single relative movement that the printer supports.

Move Up
Enter a command string that moves the printhead up the page a specified distance. At print-time, WordPerfect stores the number of printer units to move in the VS variable.

For example, the command **[27] "*p-" ASCII(VS) "Y"** could be entered to move the printhead up the page on an HP LaserJet Series II printer.

If a command is not entered here, then WordPerfect will not be able to reverse the paper vertically. The Print Super/Subscripts, Advances, Graphics in Top-to-Bottom Order item should be marked in the Miscellaneous Information menu for the printer if this command is left blank.

Move Down
Enter a command string that moves the printhead down the page a specified distance. At print-time, WordPerfect stores the number of printer units to move in the VS variable.

For example, the command **[27] "*p+" ASCII(VS) "Y"** could be entered to move the printhead down the page on the HP LaserJet Series II printer.

Absolute Vertical Motion

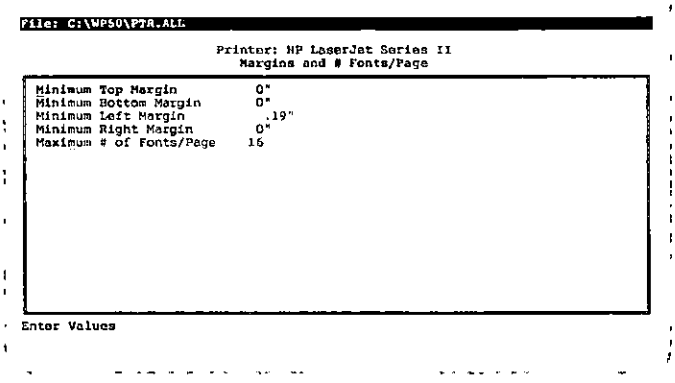
This menu lists printer command strings for performing vertical motion measured form the top edge of the page. The position is a multiple of the printer's vertical motion units.

When you select Absolute Vertical Motion a second menu is displayed for entering commands that move the printhead to the specified vertical position. At print-time WordPerfect stores the position to which the printer should move in the YPOS variable.

For example the command **[27] "*p" ASCII(YPOS) "Y"** could be entered to move the cursor to the specified vertical position on an HP LaserJet Series II printer.

Margins and # Fonts/Page

When you select Margins and # Fonts/Page from the Printer menu, a menu is displayed that lists some of the limitations of the printer.



Included in the list are the minimum margins and the maximum number of fonts that can be printed on a single page. WordPerfect recognizes the limits set on margins in this menu, and does not let you set margins smaller than those entered. However, entering the maximum number of fonts in this menu does not currently prevent you from setting up too many fonts on a page when creating a document.

Minimum Top Margin

Enter the distance (in inches) between the top edge of the paper and the top-most printing position. A minimum top margin must be entered if there is a top printhead bias entered in the Miscellaneous Printer Commands menu.

Minimum Bottom Margin

Enter the distance (in inches) between the bottom edge of the paper and the bottom-most printing position.

Minimum Left Margin

Enter the distance (in inches) between the left edge of the paper and the left-most printing position. A minimum left margin must be entered if there is a left printhead bias entered in the Miscellaneous Printer Commands menu.

Minimum Right Margin

Enter the distance (in inches) between the right edge of the paper and the right-most printing position.

Maximum # of Fonts/Page

Enter the maximum number of separate fonts (not font changes) the printer allows on each page (e.g., 16 for the HP LaserJet Series II).

This information is currently not used by WordPerfect.

Laser Printers

Many laser printers are set to prevent the user from printing in a quarter inch strip around the edge of the page. In this case, all four minimum margins need to be set to one quarter inch.

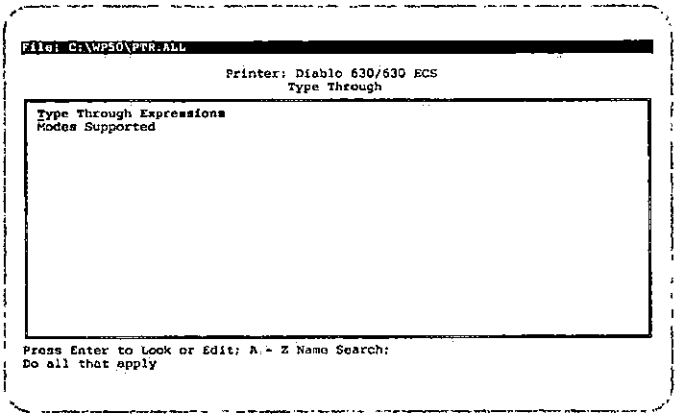
For other laser printers like the HP LaserJet Series II), a command string can be sent to the printer to that resets the unprintable region to 0 (the edges of the form). The string is available because the unprintable region varies slightly from printer to printer.

In this case, (as in the screen above), you may want to send this string to the printer, and then set the minimum margins to "0" or to a value (bias) that makes sure that the margin will always be exactly what the user requests.

Some laser printers do not print a character if any part of the character moves into an unprintable region. For example, the minimum left margin for the HP LaserJet Series II may need to be set to .18" instead of .19" if a font has characters that are not printing at the right margin.

Type Through

When you select Type Through from the Printer menu, a menu is displayed that lets you set the commands needed to support the Type Through feature in WordPerfect.

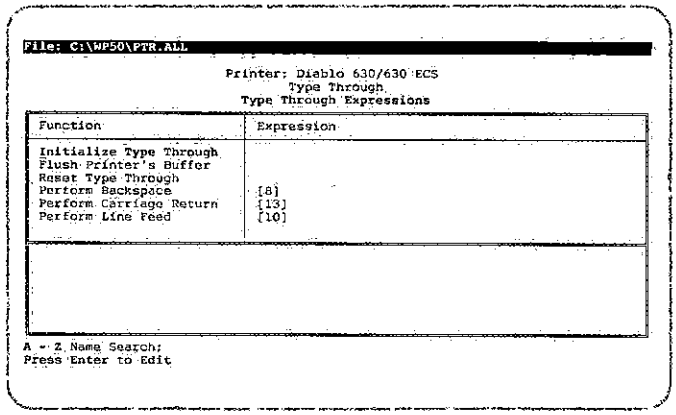

File: C:\WP50\PTR.ALL
Printer: Diablo 630/630 ECS
Type Through
Type Through Expressions
Modes Supported
Press Enter to Look or Edit; A - Z Name Search:
Do all that apply

You can also indicate whether the printer supports Character and/or Line Type Through. Printers that do not strike a character on the page (e.g., laser printers) cannot support Type Through and do not need this information filled in.

Select an item from the menu, and then enter the appropriate information. When you finish, press **Exit** (F7) to return to the Printer menu.

Type Through Expressions

When you select Type Through Expressions from the Type Through menu, the following menu is displayed.



Initialize Type Through

Enter a command string that places the printer in Type Through mode. Many printers do not need to be placed in a special mode for type through, so this command can be left blank.

A command should be entered here for printers that use the HMI (Horizontal Motion Index) for moving the printhead horizontally, or a random pitch will be assigned to the printed text.

Flush Printer's Buffer

Enter a command string that clears all the characters in the printer's buffer and prints them on the page.

Reset Type Through

Enter a command string that resets the printer mode, canceling the Type Through mode.

Perform Backspace

Enter a command string that moves the printhead back (i.e., to the left) the width of the previously printed character.

Perform Carriage Return

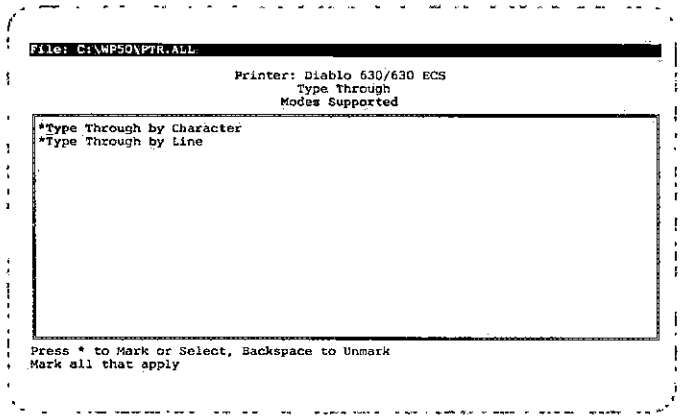
Enter a command string that moves the printhead to left-most printing position.

Perform Line Feed

Enter a command string that moves the printhead down to the next line.

Modes Supported

When you select Modes Supported from the Type Through menu, another menu appears that lets you mark whether the printer supports the Character and/or Line Type Through method.



If a method is not selected for Type Through in this menu, then a message is displayed in WordPerfect when Type Through is selected, indicating that the feature is not supported by this printer.

Type Through by Character

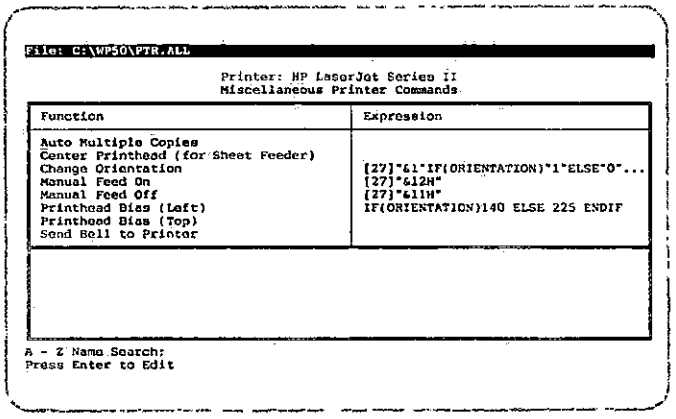
Mark this option to indicate that the printer supports character-by-character printing. Each character that is sent to the printer is immediately printed.

Type Through by Line

Mark this option to indicate that the printer supports line-by-line printing. Characters sent to the printer are stored in the printer's buffer until a carriage return is sent, and then the entire line is printed at once.

Miscellaneous Printer Commands

When you select Miscellaneous Printer Commands from the Printer menu, the following menu is displayed that includes options for items such as setting the number of copies printed for each print job, changing orientation, and manual feeding paper.



When you finish entering the appropriate information, press **Exit** (F7) to return to the Printer menu.

Auto Multiple Copies

For printers with a Multiple Copies feature, enter a command string that sets the number of copies. WordPerfect stores the number of copies at print-time in the COPIES variable.

For example, the [27] "&l" ASCII(COPIES) "X" command could be entered to set multiple copies for the HP LaserJet Series II printer.

This feature is not currently implemented in WordPerfect.

Center Printhead (for Sheet Feeder)

Enter a command string that moves the printhead to the center of the platen.

Change Orientation
Enter a command string to set the printing orientation for printers that support multiple orientations (e.g., Mannesmann Tally MT910, HP LaserJet 2000). WordPerfect stores the orientation in the ORIENTATION variable at print-time.

Manual Feed On
Enter a command string that turns on manual paper feeding or selects the manual feed tray.

Manual Feed Off
Enter a command string that turns off manual paper feeding or selects the default paper tray.

Printhead Bias (Left)
Enter the distance (in 1200ths of an inch) between the left edge of the page and the left-most printhead position. A positive value means that the printer requires a minimum left margin.

After entering a left bias, a minimum left margin needs to be set by selecting Margins and # Fonts/Page from the Printer menu.

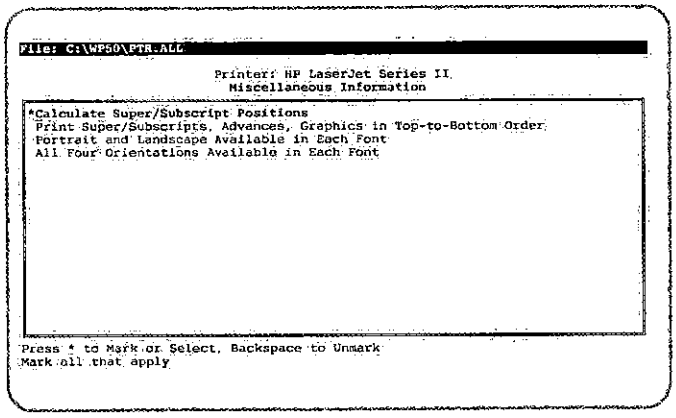
Printhead Bias (Top)
Enter the distance (in 1200ths of an inch) between the top edge of the page and the top-most printhead position. A positive value means that printer requires a minimum top margin.

After entering a top bias, a minimum top margin needs to be set by selecting Margins and # Fonts/Page from the Printer menu.

Send Bell to Printer
Enter **yes** if the bell should ring at the printer instead of the computer, otherwise, enter **no**.

Miscellaneous Information

When you select Miscellaneous Information from the Printer menu, the following menu is displayed.


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Miscellaneous Information
*Calculate Super/Subscript Positions
Print Super/Subscripts, Advances, Graphics in Top-to-Bottom Order
Portrait and Landscape Available in Each Font
All Four Orientations Available in Each Font
Press * to Mark or Select, Backspace to Unmark
Mark all that apply

You can mark one or more options in this menu to indicate various printer capabilities for handling superscripts/subscripts, page advances, and graphics figures. After marking the appropriate items, press **Exit** (F7) to return to the Printer menu.

Calculate Super/Subscript Positions

Mark this option to have WordPerfect calculate a vertical adjustment for super/subscript characters. All super/subscript characters are printed so that they overlap the base font lowercase x by 1/8 of the x-height. The baseline bias of each character in the super/subscript font is taken into account.

This option should *not* be marked if the printer has fixed vertical motion units (i.e., must move 1/6 inch on every line feed). If the option is not marked, no additional vertical adjustment is made to print super/subscript characters, even though they may have baseline biases.

Print Super/Subscripts, Advances, Graphics in Top-to-Bottom Order

Mark this option to have WordPerfect sort each page by vertical printhead position and print the page from top to bottom when the printer cannot back up vertically. With the option marked, each logical line containing super/subscripts requires multiple horizontal passes to print.

Portrait and Landscape Available in Each Font

Mark this option if (and only if) every font on the current printer can be printed in portrait and landscape orientations.

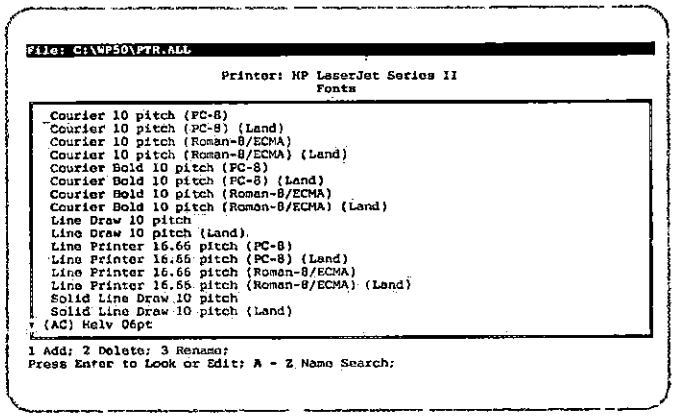
All Four Orientations Available in Each Font

Mark this option if (and only if) every font on the current printer can be printed in portrait, landscape, reverse portrait, *and* reverse landscape orientations.

Fonts

A font is commonly defined as a typeface (i.e., Helvetica, Times Roman Bold) in a particular size (10 pt., 30 pt.). However, in addition to typeface and size, font information in WordPerfect also includes items such as orientation, a character map, and pitch.

When you first select Fonts from the Printer menu, a list of available fonts for the current printer is displayed on the screen.


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Fonts
Courier 10 pitch (PC-8)
Courier 10 pitch (PC-8) (Land)
Courier 10 pitch (Roman-8/ECMA)
Courier 10 pitch (Roman-8/ECMA) (Land)
Courier Bold 10 pitch (PC-8)
Courier Bold 10 pitch (PC-8) (Land)
Courier Bold 10 pitch (Roman-8/ECMA)
Courier Bold 10 pitch (Roman-8/ECMA) (Land)
Line Draw 10 pitch
Line Draw 10 pitch (Land)
Line Printer 16.66 pitch (PC-8)
Line Printer 16.66 pitch (PC-8) (Land)
Line Printer 16.66 pitch (Roman-8/ECMA)
Line Printer 16.66 pitch (Roman-8/ECMA) (Land)
Solid Line Draw 10 pitch
Solid Line Draw 10 pitch (Land)
(AC) Helv 06pt
1 Add; 2 Delete; 3 Rename;
Press Enter to Look or Edit; A - Z Name Search;

If you are editing a PRS file, then the fonts listed are those that you selected when creating the PRS file in WordPerfect. If you are editing an ALL file, then the fonts listed include all those currently supported by WordPerfect for the printer. At least one font must be defined for each printer.

While in the list of fonts, you can add, delete, or rename a font by selecting the appropriate option from the menu at the bottom of the list.

Adding a Font

A font can be added to the list by selecting Add (1), placing the cursor on a font to use as a pattern and pressing **Enter** (or **Ctrl-Enter** for a default font definition), and then entering a name for the font. If the list of fonts is empty, the default definition is automatically selected as a pattern.

Fonts should be added to the ALL file, then selected in WordPerfect from the Edit menu for Select Printers. The new font is then added to the selected printer's PRS file. While adding the font to the PRS file, WordPerfect selects automatic font changes (AFCs) and substitute fonts for the new font being added.

If the font added to the ALL file has one or more AFCs or substitute fonts selected, then WordPerfect assumes that all AFCs and substitute fonts have been selected for the font, and will not select any others.

When entering a name for the font, information such as a cartridge letter or soft font group can be placed in parentheses at the beginning of the name to have the list of fonts sorted alphabetically by group for quicker selection when defining the PRS file.

However, because you do not need to worry about the location of the font when selecting a base font, the information in parentheses is listed at the end of the font name by WordPerfect when displaying the selected fonts in the base font list.

Deleting a Font

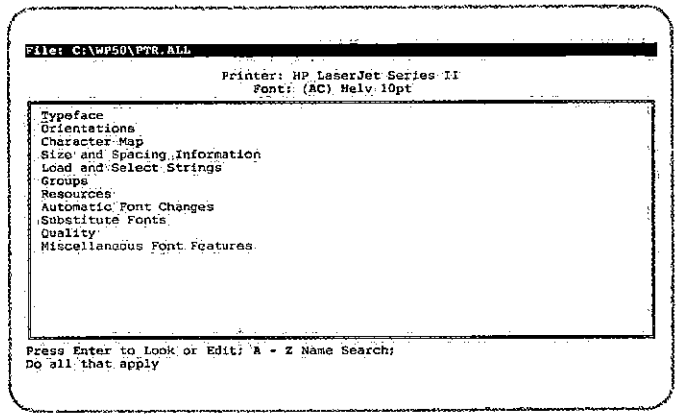
A font can be deleted from the list by placing the cursor on the font name, selecting Delete (2), and then typing **y**.

Renaming a Font

A font can be renamed by selecting Rename (3) and then entering a new name for the font.

Editing a Font

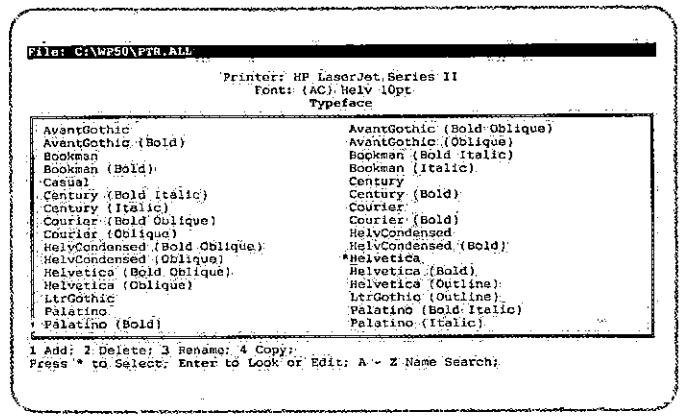
Each font represents detailed information used by WordPerfect to support such features as proportional spacing, kerning, line height (leading), and font changes for attributes and characters. Once you select a font from the list, a menu appears that lets you enter the appropriate information about the font.



When you finish, press **Exit** (F7) to return to the Printer menu.

Typeface

When you select Typeface from the Font menu, a list of all the font typefaces for the current PRS or ALL file is displayed.



One (and only one) typeface should be marked for the current font. A typeface represents several categories of information such as style, serifs, shape, and stress that describe the general appearance and structure (metrics) of the characters in a font.

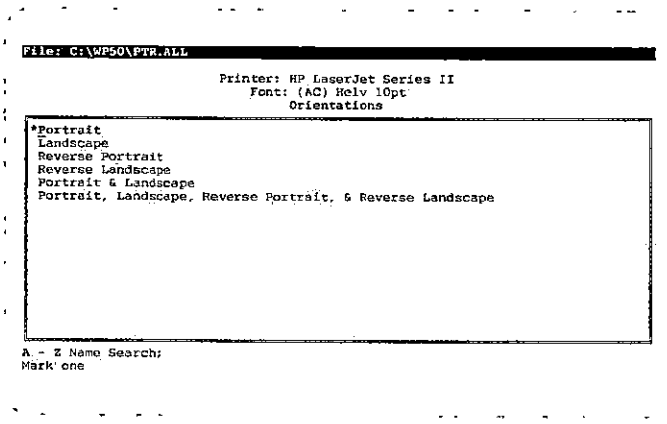
The primary purpose of the typeface list at this level of the Printer program is to let you mark (select) a typeface for the current font. While you can add, delete, rename, copy, or edit typefaces at this point, the Typeface list can also be displayed and edited by pressing **Typefaces** (Shift-F6).

For details on editing typefaces, turn to the Typefaces heading in Reference.

When you finish marking a typeface, press **Exit** (F7) to return to the Font menu.

Orientations

When you select Orientations from the Font menu, a list of printing orientations supported by WordPerfect is displayed.



One (and only one) orientation should be marked for the current font. The last two orientation categories should be marked *only* if the printer actually rotates the font. Separate fonts in different orientations should *not* be combined, but should be defined separately.

For example, the HP LaserJet Series II can print Helvetica 12pt in both portrait and landscape. However, each orientation is seen by the printer as a different font. By marking Portrait & Landscape in the menu for the Helvetica 12pt Portrait font, you are telling WordPerfect that the HP LaserJet Series II creates Helvetica 12pt Landscape by simply rotating the font 90 degrees, which is incorrect.

You should always define a font exactly as the printer uses it. Attempting to manipulate fonts by combining orientations does not create a *superfont*, but simply provides the wrong information to WordPerfect about the printer.

If one of the orientation items in the printer's Miscellaneous Information menu is marked (e.g., Portrait and Landscape in all fonts), that information takes precedence over any item marked in the Orientations menu for the font.

Portrait
Mark this orientation to indicate that the font only prints in a left-to-right direction across the narrow edge (usually the width) of the page.

Landscape
Mark this orientation to indicate that the font only prints in a bottom-to-top direction across the long edge (usually the length) of the page.

Reverse Portrait
Mark this orientation to indicate that the font only prints in a right-to-left direction (upside down) across the narrow edge (usually the width) of the page.

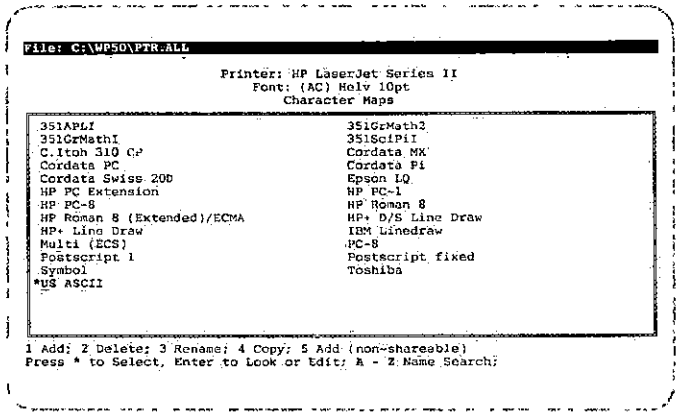
Reverse Landscape
Mark this orientation to indicate that the font only prints in a top-to-bottom direction across the long edge (usually the length) of the page.

Portrait & Landscape
Mark this category to indicate that the font can print in both portrait and landscape orientations.

Portrait, Landscape, Reverse Portrait, & Reverse Landscape
Mark this category to indicate that the font can print in all four orientations.

Character Map

When you select Character Map from the Font menu, a list of all the character maps in the current PRS or ALL file is displayed.



One (and only one) character map should be marked for the current font. Each character map is a complete list of the WordPerfect character sets, with a command string entered for each character that the font supports.

The primary purpose of the character map list at this level of the Printer program is to let you mark (select) a character map for the current font. While you can add, delete, rename, copy, or edit character maps at this point, the Character Maps list can also be displayed and edited by pressing **Character Maps** (F4).

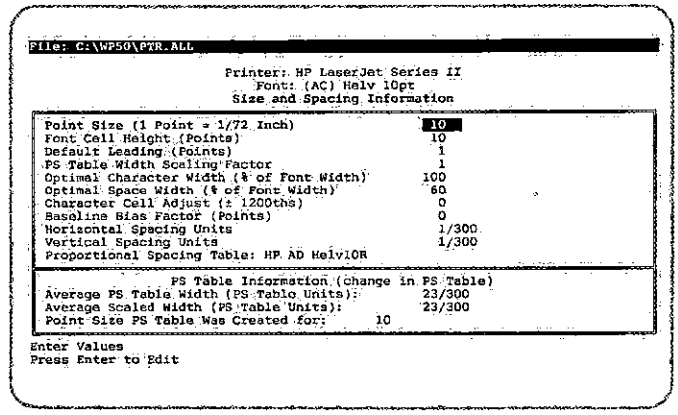
For details on editing character maps, turn to the Character Maps heading in Reference.

When you finish marking a character map, press **Exit** (F7) to return to the Font menu.

If a PS table is assigned to the font, then each character needs to be defined in both the character map and PS table, or WordPerfect will not print the character.

Size and Spacing Information

When you select Size and Spacing Information from the Font menu, a menu similar to the following is displayed.


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Font: (AC) Helv 10pt
Size and Spacing Information
Point Size (1 Point = 1/72 Inch) 10
Font Cell Height (Points) 10
Default Leading (Points) 1
PS Table Width Scaling Factor 1
Optimal Character Width (% of Font Width) 100
Optimal Space Width (% of Font Width) 60
Character Cell Adjust (± 1200ths) 0
Baseline Bias Factor (Points) 0
Horizontal Spacing Units 1/300
Vertical Spacing Units 1/300
Proportional Spacing Table: HP AD Helv10R
PS Table Information (Change in PS Table)
Average PS Table Width (PS Table Units): 23/300
Average Scaled Width (PS Table Units): 23/300
Point Size PS Table Was Created for: 10
Enter Values
Press Enter to Edit

The menu includes information about font size (point size, leading), horizontal and vertical motion resolutions, and which proportional spacing table (if any) is selected for the font.

The items listed in the menu vary, depending on whether the font is a standard or a PostScript font, and whether the font is mono-spaced (fixed pitch) or proportionally-spaced. Each item in the menu (except the proportional spacing table) is a value that can be entered by moving the cursor to the item, typing the value, and pressing **Enter**.

Additional information about the font is displayed at the bottom of the menu if a proportional spacing table has been selected.

All Fonts

Point Size

Enter the point size of the font as it is displayed in the font name, and as the user requests it. The point size will often include a little extra spacing (leading) above and/or below the font cell (see Font Cell Height below). For this reason, the font cell height is often a little smaller than the requested point size of the font.

For PostScript fonts, the point size, font cell height, and default leading are often the same for all defined fonts. When you select the font and enter a point size in WordPerfect, the font cell height and default leading are calculated in the same proportions as those listed for the point size (usually 12 point) in the size and spacing information.

The point size is basically intended for scalable fonts, and can be used for non-PostScript printers that support scaling of fonts.

Font Cell Height

The font cell is the rectangular area in which all the characters of a font have been designed to be placed, and is larger than any single character. The font cell height value is the actual point size of the font used by WordPerfect to determine line spacing (leading) and to position diacritical marks over lowercase and uppercase letters.

The height of the font cell can be determined in WordPerfect by overstriking the characters "H" and "y" several times in a line, and then copying the line down the page a few times. Then use the Fixed Line Height feature at the beginning of each line to enter a line height that is close to the point size of the font (e.g., 11.1, 11.2, 11.3 points). After printing the document, find the line where the "y" just barely touches the "H" in the line below. The line height for that line is the font cell height.

You may need to print the document several times, readjusting the line height each time, until a line prints that has the correct cell height.

Default Leading

Leading is additional space added between the lines of a font to make the characters more legible. Enter the default leading (in points) you want WordPerfect to add to the font cell height. A standard amount of leading for a 10-12 point font is 1 point.

The Automatic Line Height in WordPerfect is the sum of the values entered in this menu for the Font Cell Height and Default Leading. You can change the automatic line height in WordPerfect by selecting Fixed Line Height from the Line Format menu. The default value displayed for fixed line height is the automatic line height.

Optimal Character Width (% of Font Width)

Enter a percentage of the font width to indicate how far apart letters are spaced in WordPerfect. The percentage entered here is the value used for the Optimal setting with the Letter Spacing option on the Printer Function menu in WordPerfect.

Optimal Space Width (% of Font Width)

Enter a percentage of the font width to indicate how far apart words are spaced in WordPerfect. The percentage entered here is the value used for the Optimal setting with the Word Spacing option on the Printer Function menu in WordPerfect.

Character Cell Adjust (±1200ths)

The character cell adjustment is the distance (in 1200ths of an inch) by which all the characters in a font must be shifted to the right or left to left-justify each character within its cell.

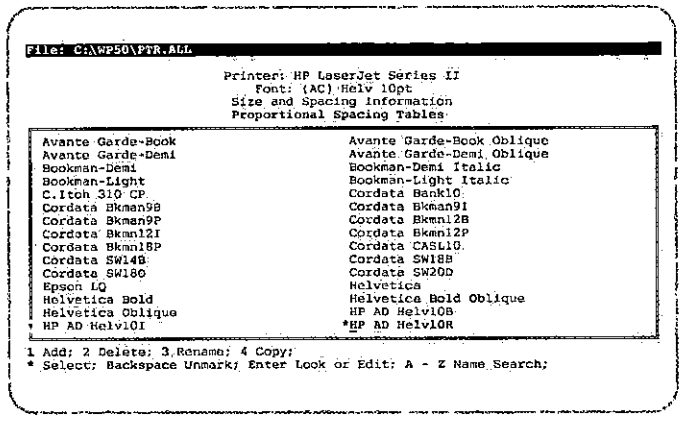
For fonts which include a lot of white space in each character cell, the Character Cell Adjust value is useful for adjusting all characters to the left so that the page's left margin is straight—even when mixed with other fonts. (The eye wants to see the characters, not the character cells, lined up on the left margin.)

A value entered here is equivalent to adding the same value to every character in the adjust column of a proportional spacing table. If an adjust factor already exists for a character in the proportional spacing table, then the Character Cell Adjust value is added to it.

Enter a negative number to move characters to the left; enter a positive number to move characters to the right.

Baseline Bias Factor (Points)

The baseline is an imaginary line drawn through the lowest point of non-descending uppercase letters.

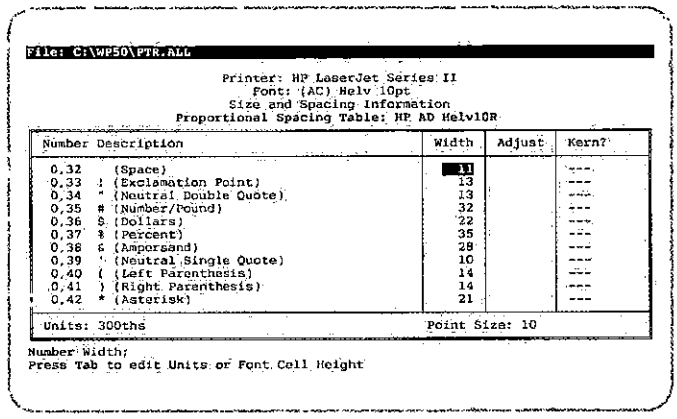


On some fonts, the lowest point of the uppercase letters may fall above or below the baseline. You can adjust the letters to touch the line by entering a positive bias (in points) to move the letters down, or by entering a negative bias to move the letters up.

Proportional Spacing Table

Each character in a proportionally-spaced font is assigned its own width. The widths are listed in a proportional spacing table (in the PRS or ALL file) which is assigned to the font so that WordPerfect can print the characters correctly. Mono-spaced fonts (fixed pitch) use the same width for each character, and do not need a proportional spacing table.

A list of all the proportional spacing tables available in the PRS or ALL file can be displayed by moving the cursor to Proportional Spacing Table in the Size and Spacing Information menu, and then pressing **Enter**.


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Font: (AC) Helv 10pt
Size and Spacing Information
Proportional Spacing Table: HP AD Helv10R
Number Description
Width
Adjust
Kern?
0,32 (Space) 11 ---
0,33 ! (Exclamation Point) 13 ---
0,34 " (Neutral Double Quote) 13 ---
0,35 # (Number/Pound) 32 ---
0,36 $ (Dollars) 22 ---
0,37 % (Percent) 35 ---
0,38 & (Ampersand) 28 ---
0,39 ' (Neutral Single Quote) 10 ---
0,40 ((Left Parenthesis) 14 ---
0,41) (Right Parenthesis) 14 ---
0,42 * (Asterisk) 21 ---
Units: 300ths
Point Size: 10
Number Width;
Press Tab to edit Units or Font Cell Height

The primary purpose of the list at this level of the Printer program is to let you mark (select) a proportional spacing table for the current font. While you can add, delete, rename, copy, or edit tables at this point, the Proportional Spacing Tables list can also be displayed and edited by pressing **PS Tables** (F6).

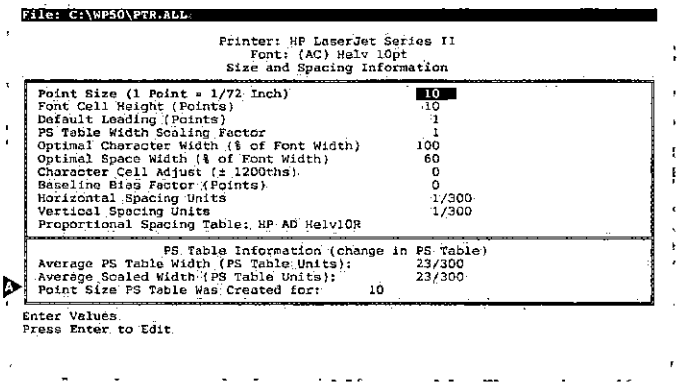
For details on editing the list and tables, turn to the Proportional Spacing Tables section in Reference. A character needs to be defined in both the PS table (if any) and the character map assigned to the font, or WordPerfect will not print the character.

You can select a table for the current font by marking a table in the list, and then pressing **Exit** (F7) to return to the Size and Spacing Information menu. When a table is selected, the menu is adjusted to include new items specifically related to proportionally-spaced fonts.

Although a proportional spacing table can be assigned to any font, you cannot convert a mono-spaced font (fixed pitch) to a proportional font simply by assigning it a proportional spacing table. The character widths need to actually exist in the font for WordPerfect to use them.

After selecting a table, the following information is added to the bottom of the menu.

A PS TABLE INFORMATION


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Font: (AC) Helv 10pt
Size and Spacing Information
Point Size (1 Point = 1/72 Inch) 10
Font Cell Height (Points) 10
Default Leading (Points) 1
PS Table Width Scaling Factor 1
Optimal Character Width (% of Font Width) 100
Optimal Space Width (% of Font Width) 60
Character Cell Adjust (± 1200ths) 0
Baseline Bias Factor (Points) 0
Horizontal Spacing Units 1/300
Vertical Spacing Units 1/300
Proportional Spacing Table: HP AD Helv10R
PS Table Information (change in PS Table)
Average PS Table Width (PS Table Units): 23/300
Average Scaled Width (PS Table Units): 23/300
Point Size PS Table Was Created for: 10
Enter Values
Press Enter to Edit

The information includes an average width for the proportional spacing table characters, an average scaled width, and the font size listed in the proportional spacing table (non-PostScript printers only).

The average table width is calculated by WordPerfect from the widths listed in the Width column of the proportional spacing table. The average scaled width takes into account the width scaling factor, and the point size in both the size and spacing information and the PS table.

For example, by changing the width scaling factor to 2, the averaged scaled width becomes twice that of the average width. However, by leaving the scaled width at 1 and entering a point size double that of the point size in the PS table, the average scaled width is also doubled.

The averages and point size are updated as new information is entered in the PS table and the size and spacing information menu.

Standard Fonts

Pitch (Characters per Inch)

For a mono-spaced font, the pitch indicates the distance the printhead moves after printing each character. Pitch includes both the character width (which is the same for each character) and the white space used for spacing between characters.

Enter the pitch in characters per inch (usually listed in the font name).

Horizontal Spacing Units

Enter the units of horizontal motion for the font (in units per inch). For example, the horizontal units for an HP LaserJet Series II are 300 per inch, and would be entered as **1/300**.

Vertical Spacing Units

Enter the units of vertical motion for the font (in units per inch). For example, the vertical units for an HP LaserJet Series II are 300 per inch, and would be entered as **1/300**.

PostScript Fonts

Amount to Slant Font (Degrees)

PostScript printers have the ability to slant a font up to 89 degrees to the left or right. A full 89 degree slant prints a solid line, while a 0 degree slant prints the characters in an upright position.

Enter a negative number to slant the font to the left; enter a positive number to slant the font to the right. The degrees of slant are added to any slant already designed into the font.

Standard and PostScript Fonts

Font Width

For mono-spaced fonts (fixed pitch), enter the character width (one width for all characters). Enter the width in horizontal spacing units for non-PostScript fonts, and in PostScript units (1200ths of a inch) for PostScript fonts.

Width Scaling Factor

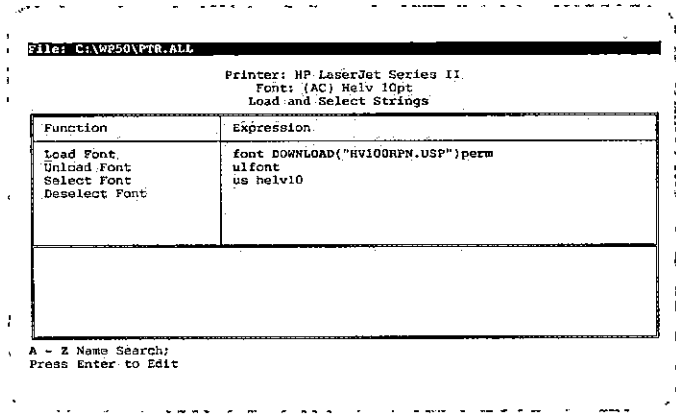
Whenever possible, it is a good idea to use the same proportional spacing (PS) table for several fonts to reduce the size of the PRS or ALL file. For fonts to share the same proportional spacing table, the characters widths for each font should match those listed in the table.

A point size is specified for each proportional spacing table. If the ratio of the current font point size versus the PS table point size can be applied to the widths in the proportional spacing table, then the width scaling factor should be set to 1. However, if the ratio of the point sizes needs to be multiplied by an additional scaling factor to produce the correct widths, then this factor should be entered for the width scaling factor.

For example, a printer with a normal and a double-width font of the same point size may be able to share the same proportional spacing table by entering **2** for the width scaling factor of the double-width font. For a half-width font, you may want to enter **.5** to decrease the widths by half. However, condensed fonts may need a factor between **.5** and **1**.

Load and Select Strings

When you select Load and Select Strings from the Font menu, the following menu is displayed.



The commands in this menu provide information for loading, unloading, selecting, and deselecting the current font. The font and printing attribute variables can be used in the commands to determine which strings should be sent to the printer.

Load Font

Enter a command string that loads the font into the printer's memory. If no commands are entered, the font should be defined as built-in (always present) or part of a group (i.e. such as a cartridge).

If you include a filename (for soft fonts) in the download command string, WordPerfect automatically adds the path listed in Path for Downloadable Fonts in the printer information in WordPerfect. A path in the download command string will be ignored.

Unload Font

Enter a command string that unloads the font from the printer's memory. If no commands are entered, the font should be defined as built-in (always present) or part of a group (i.e. such as a cartridge), unless the resource for the font does not permit the unloading of fonts.

Select Font

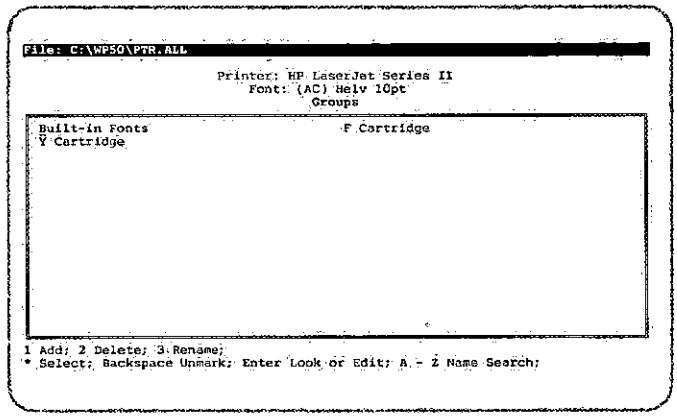
Enter a command string that selects the font from the printer's memory, a cartridge slot, etc. WordPerfect uses this command whenever a base font or attribute change is requested in a document.

Deselect Font

Enter a command string that cancels any of the Select Font command's side effects that are not canceled by other fonts' selection strings. Many fonts do not need a deselect string.

Groups

When you select Groups from the Font menu, a list of all the groups defined for the current printer is displayed.


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Font: (AC) Helv 10pt
Groups
Built-in Fonts
Y Cartridge
F Cartridge
1 Add; 2 Delete; 3 Rename;
* Select; Backspace Unmark; Enter Look or Edit; A - Z Name Search;

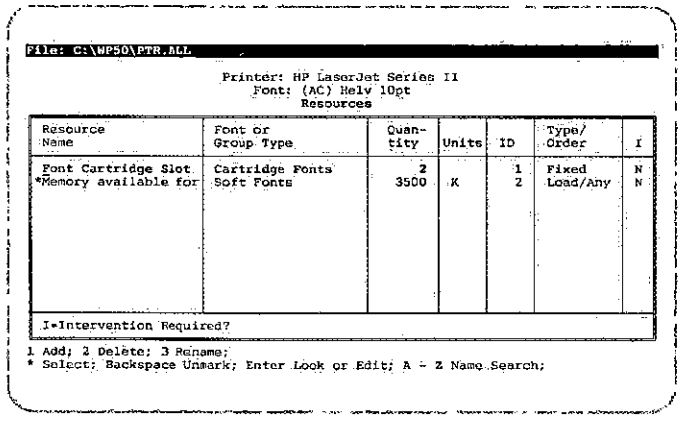
A group is a collection of fonts which must be loaded and unloaded as a unit (e.g., built-in fonts, fonts on a cartridge). If the font belongs to a particular group, type an asterisk to mark the group. If the font is built into the printer, mark the Built-in Fonts resource. Press **Exit** (F7) to return to the Font menu. Most soft fonts are loaded and unloaded as individual files, and do not need to be assigned to a group.

The primary purpose of the group list at this level of the Printer program is to let you mark (select) assign the font to a group. While you can add, delete, rename, or edit a group at this point, the Group list for the current printer can also be displayed and edited by selecting Groups from the Printer menu.

For details on editing groups, turn to the Groups heading in Reference.

Resources

When you select Resources from the Font menu, a table of all the resources defined for the current printer is displayed.



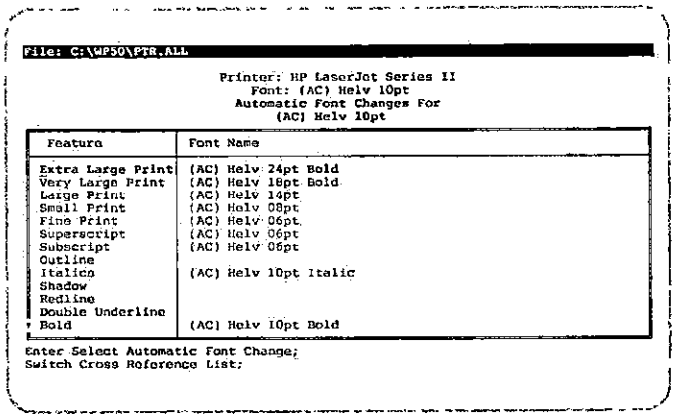
A resource is anything in the design or hardware of the printer that limits the number of fonts or groups which can be loaded at a given time (e.g., memory for soft fonts, slots for font cartridges). Mark the resource to which the font should be assigned by typing an asterisk, and then press **Exit** (F7) to return to the Font menu.

The primary purpose of the resource table at this level of the Printer program is to let you assign the current font to a particular resource. While you can add, delete, rename, or edit a resources at this point, the Resource table can also be displayed and edited by selecting Resources from the Printer menu.

For details on editing the Resources table, turn to the Resource heading in Reference.

Automatic Font Changes

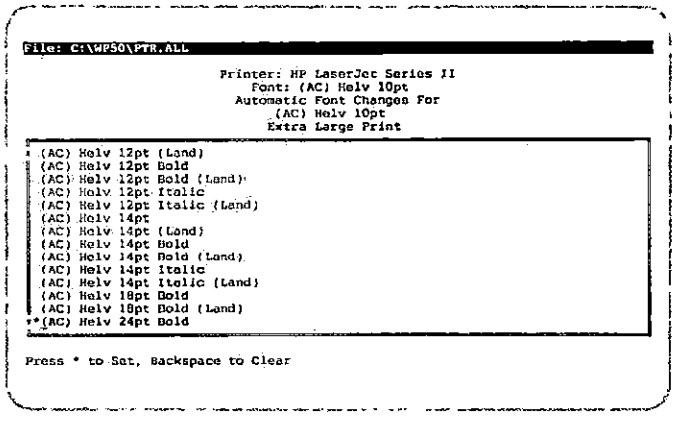
When you select Automatic Font Changes (AFCs) from the Font menu, the following menu is displayed.



The AFCs are listed in the first column of the menu and include attributes (e.g., extra large, small), character sets (ASCII, Multinational 1, Box Draw), and orientations (e.g., portrait, landscape).

Selecting a Font

The font names listed in the second column are selected from a list of all the available fonts for the current printer. The font list can be displayed by moving the cursor to an AFC feature and pressing **Enter**.


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Font: (AC) Helv 10pt
Automatic Font Changes For
(AC) Helv 10pt
Extra Large Print
(AC) Helv 12pt (Land)
(AC) Helv 12pt Bold
(AC) Helv 12pt Bold (Land)
(AC) Helv 12pt Italic
(AC) Helv 12pt Italic (Land)
(AC) Helv 14pt
(AC) Helv 14pt (Land)
(AC) Helv 14pt Bold
(AC) Helv 14pt Bold (Land)
(AC) Helv 14pt Italic
(AC) Helv 14pt Italic (Land)
(AC) Helv 18pt Bold
(AC) Helv 18pt Bold (Land)
*(AC) Helv 24pt Bold
Press * to Set, Backspace to Clear

The current font selected for the AFC (if any) is marked with an asterisk. A font can be selected by scrolling through the list, typing an asterisk next to the font, and then pressing **Exit** (F7) to return to the AFC menu. To display all the AFCs in the menu, use the cursor keys to scroll through the menu.

Fonts are selected by WordPerfect for some of the AFCs when the PRS file is created. If you want to edit or add to WordPerfect's choices, it should be done in the PRS file and not the ALL file. As soon as you select even one font for an AFC in the ALL file, WordPerfect assumes that you have already decided which fonts you want selected for the AFC menu, and will not select any AFCs when the PRS file is created.

Search Order

An automatic font change is like inserting a base font code into a WordPerfect document. As soon as WordPerfect switches to the font listed in the AFC menu, all the information defined for the new font (AFCs and Substitute fonts included) is used until WordPerfect switches back to the original font.

WordPerfect searches through the AFCs for the correct font by starting with the orientation, moving on to the character sets, and then finally searching through the attributes (size attributes first and then appearance attributes).

For example, if the current font is Helvetica 10pt Portrait, and a bolded Greek word appears in the text, WordPerfect looks through the orientation AFCs and finds no portrait font listed (the current font is already portrait). It then finds a font listed for the Greek character set and switches to that font.

A search is then done through the attribute AFCs of the Greek font until Bold is reached. If a bold font is listed, then WordPerfect switches to that font to print bolded Greek characters. If no bold font is listed, then WordPerfect uses the method defined for bolding characters when no AFC exists (i.e., multiple pass overstrike).

After the bolded Greek work is printed, WordPerfect switches back to Helvetica 10pt Portrait and continues printing the document.

Attributes

The attributes listed in the AFC menu are those that can be found on the Font Size/Appearance menus in WordPerfect. WordPerfect switches to the attribute AFC font when the On code for the attribute is encountered in a document, and remains in that font until the Off code is encountered. At that point, WordPerfect switches back to the current default font.

If a font is not selected for the following attribute AFCs, then WordPerfect prints the text using the initial font selected for the document.

Extra Large
Very Large
Large Print
Small Print
Fine Print
Superscript
Subscript
Outline
Small Caps

If a font is not selected for the following attribute AFCs, then WordPerfect uses the method defined in the Printer menu for creating the attribute.

Italics
Shadow
Redline
Double Underline
Bold
Strikeout
Underline

If a font is selected for Small Caps, then WordPerfect checks to see if it is a true small caps font. If so, then the characters are printed as designed in the font. If, however, the font is a not a small caps font, then WordPerfect converts any lowercase letters to uppercase and prints them in the selected font. Uppercase letters are printed in the current font. In order for Small Caps to print as expected, a font that is smaller (by at least two points) than the current font should be selected.

Character Sets

All 13 character sets are listed in the AFC menu. By selecting a font for a character set, WordPerfect automatically switches to that font if a character in the set is found in a document that is not in the current font. The switch is done on a character-by-character basis.

Usually a single font will contain many of the characters listed in a WordPerfect character set. By switching to the font with an AFC, the printed characters in that set maintain the same point size, attributes, etc. for a consistent look in the printed document. If all the characters in the set do not exist in the font, then substitute fonts can be marked for the listed AFC font.

While characters from other fonts were accessed one at a time from the character table in WordPerfect 4.2, the AFC and Substitute Font features are designed to replace the old method.

Because WordPerfect only switches to the character set AFC font when characters are needed that are not in the current font, spacing may not be accurate for the AFC font as the space character usually comes from the current font. For example, if you have a Line Draw font (mono-spaced) selected for as an AFC for a proportionally-spaced font, then the space character will come from the proportionally-spaced font and the line draw characters will not be printed correctly.

Orientation

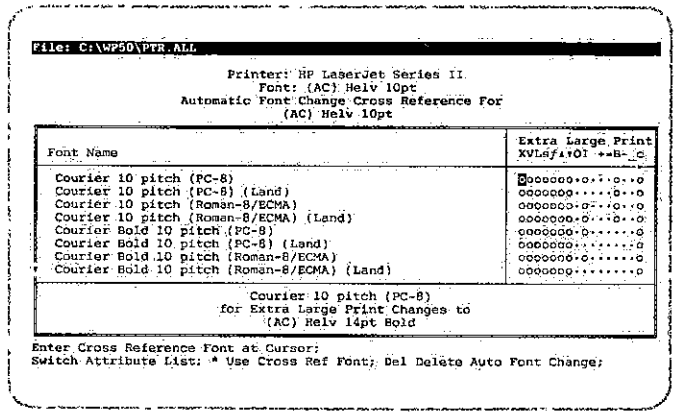
Printers such as the HP LaserJet Series II provide a separate font for each orientation. For example, Helvetica 10pt Portrait is a different font from Helvetica 10pt Landscape.

In order to help WordPerfect automatically select the correct font when changing the paper size/type for a document, AFCs can be assigned to the four orientations. For example, if Standard Landscape is selected for a document that was created using the Standard paper form/type, WordPerfect will select the Landscape font from the AFCs (if one has been assigned).

The AFC font for orientation is used until another code is encountered in the document that changes the orientation.

Cross Reference Table

When you press **Switch** (Shift-F3) while in the AFC menu, the following cross reference table is displayed for the current font.

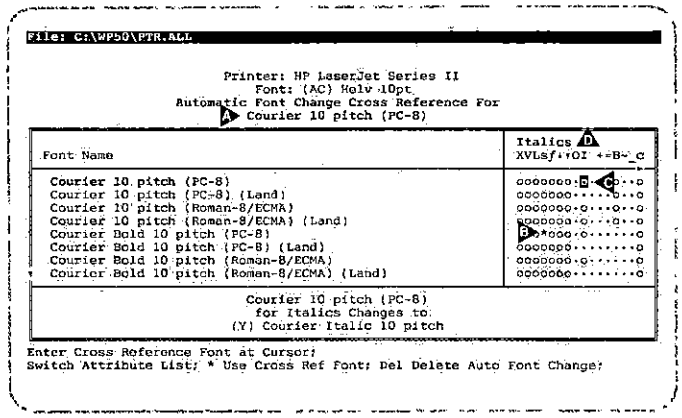

File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Font: (AC) Helv 10pt
Automatic Font Change Cross Reference For
(AC) Helv 10pt
Font Name
Extra Large Print
Courier 10 pitch (PC-8)
Courier 10 pitch (PC-8) (Land)
Courier 10 pitch (Roman-8/ECMA)
Courier 10 pitch (Roman-8/ECMA) (Land)
Courier Bold 10 pitch (PC-8)
Courier Bold 10 pitch (PC-8) (Land)
Courier Bold 10 pitch (Roman-8/ECMA)
Courier Bold 10 pitch (Roman-8/ECMA) (Land)
Courier 10 pitch (PC-8)
for Extra Large Print Changes to
(AC) Helv 14pt Bold
Enter Cross Reference Font at Cursor;
Switch Attribute List: * Use Cross Ref Font; Del Delete Auto Font Change;

The table is quite valuable as an overview of all the AFCs for the current printer, as well as a central location from which AFCs can be selected for a font.

All the fonts selected for the current printer are listed in the first column, with the name of current font at the top of the table. The current font can be changed by placing the cursor on a font name in the first column and pressing **Enter**.

The AFCs for each font are listed in the second column, with a hollow bullet (◦) or asterisk (*) indicating that a font has been selected for an AFC. An asterisk indicates that the current font for the table is selected for that AFC. By pressing **Left Arrow** or **Right Arrow**, the cursor can be moved from AFC to AFC in the second column.

A CURRENT FONT
B CURRENT FONT SELECTED
C CURSOR
D ATTRIBUTE

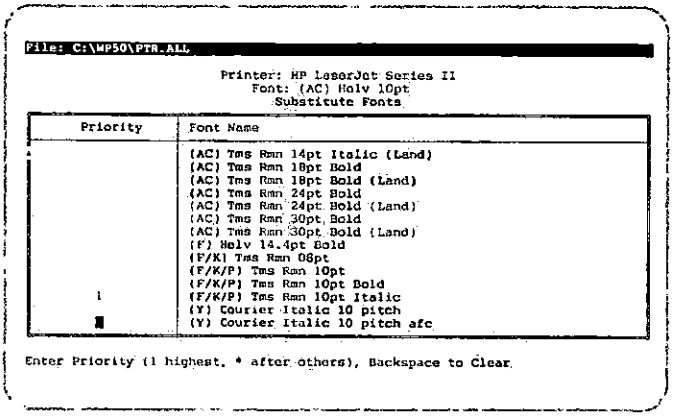

File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Font: (AC) Helv 10pt
Automatic Font Change Cross Reference For
A Courier 10 pitch (PC-8)
Font Name
Italics D
Courier 10 pitch (PC-8)
Courier 10 pitch (PC-8) (Land)
Courier 10 pitch (Roman-8/ECMA)
Courier 10 pitch (Roman-8/ECMA) (Land)
Courier Bold 10 pitch (PC-8)
Courier Bold 10 pitch (PC-8) (Land)
Courier Bold 10 pitch (Roman-8/ECMA)
Courier Bold 10 pitch (Roman-8/ECMA) (Land)
Courier 10 pitch (PC-8)
for Italics Changes to:
(Y) Courier Italic 10 pitch
Enter Cross Reference Font at Cursor;
Switch Attribute List; * Use Cross Ref Font; Del Delete Auto Font Change;

As the cursor moves, the name of the AFC is displayed at the top of the second column, and the font selected for the AFC is displayed at the bottom of the table. An asterisk can be typed to assign the current font to an AFC for any font in the list. By pressing **Del**, the font selected for an AFC can be deleted. A center dot (·) indicates that no font is selected for the AFC.

By using **Enter** to select different fonts from the list, and pressing **Switch** (Shift-F3) to toggle between the AFC menu and the cross reference list, you can organize, coordinate, and provide consistency to your AFC choices for the current printer.

Substitute Fonts

When you select Substitute Fonts from the Font menu, a list of all the fonts for the current printer is displayed.


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Font: (AC) Holv 10pt
Substitute Fonts
Priority
Font Name
(AC) Tms Rmn 14pt Italic (Land)
(AC) Tms Rmn 18pt Bold
(AC) Tms Rmn 18pt Bold (Land)
(AC) Tms Rmn 24pt Bold
(AC) Tms Rmn 24pt Bold (Land)
(AC) Tms Rmn 30pt Bold
(AC) Tms Rmn 30pt Bold (Land)
(F) Holv 14.4pt Bold
(F/K) Tms Rmn 08pt
(F/K/P) Tms Rmn 10pt
(F/K/P) Tms Rmn 10pt Bold
(F/K/P) Tms Rmn 10pt Italic
(Y) Courier Italic 10 pitch
(Y) Courier Italic 10 pitch afc
1
Enter Priority (1 highest, * after others), Backspace to Clear

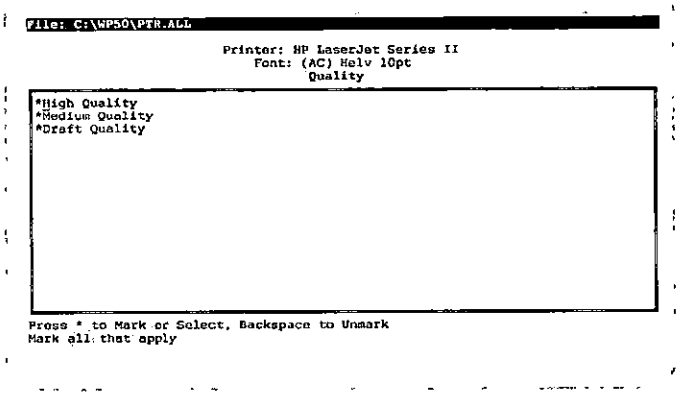
When a character is not found in the current font or any character set AFCs, WordPerfect searches through the substitute font list for marked fonts that have the appropriate character. Fonts can be marked by typing an asterisk (*) or by typing a priority number (up to 9). Those fonts marked with a number are searched in numeric order, after which all fonts marked with an asterisk are searched in the order they appear in the list.

When defining character set AFCs and substitute fonts, it is always best to use AFCs first to switch to another font for the needed characters. If the AFC font does not take care of printing all the needed characters for the set, then set up substitute fonts to fill in the rest of the character set.

For example, if you have a Greek font that has all but two of the Greek characters, then select the font for the Greek character set AFC. In the Greek font, you would then select one or more substitute fonts that have the missing Greek characters.

Quality

When you select Quality from the Font menu, the following menu is displayed.



The three qualities listed (high, medium, and draft) indicate when the font should be used by WordPerfect for formatting and printing purposes. WordPerfect assumes that only fonts marked as high quality will be used to print final drafts of documents. Medium and draft quality should be reserved for printing initial drafts of a document.

Mark one or more qualities for the font, and then press **Exit** (F7) to return to the Font menu.

Quality Handling

WordPerfect only formats documents with fonts marked as high quality. For this reasons, the only fonts that appear in the base font list are those marked as high quality. However, when the document is printed, WordPerfect checks the text quality selected on the Print menu, and tries to find fonts that are marked for the requested text quality.

For example, there are two Courier fonts defined for a PRS file, and one is marked as High Quality, while the other is marked as Medium and Draft quality. A document created with the PRS file selected has a Courier base font code inserted at the beginning of the second page.

The Courier base font is the high quality font, and WordPerfect will use all the spacing information for that font to format the document in the editing and preview screens. However, before printing the document, you select draft quality from the Print menu.
When the document is sent to the printer, WordPerfect notes that draft quality is selected and tries to find a draft font that is as close as possible to the Courier typeface. The Courier font marked for Medium and Draft quality is selected, and WordPerfect uses that font to print the text.

However, because the document was formatted using the spacing information for the high quality Courier font, the spacing between letters and words in the document may be very uneven.

Quality Selection

In marking fonts as draft, medium, and/or high quality, the idea is to decide which fonts should be used for the final draft of a document, and which fonts you want to use for quickly printing out versions of the document for editing purposes. Those fonts used for editing purposes should be marked as draft and/or medium quality, while those fonts for printing a final version of the document should be marked as high quality.

Most HP LaserJet Series II fonts are marked for all three qualities because text is always printed in the same number of dots per inch (300).

For other printers, you may be able to set up a draft and a high quality font for the same typeface by creating one font that uses space fill (draft) and another font that uses microspacing (high). Notice that a new horizontal movement means that another font should (and can) be created.

The idea of quality is also relative to the types of fonts available at the printer, and how spacing is handled for each. For example, microspacing on some printers can be done by shifting into a graphics mode. However, printing in graphics mode can be painfully slow. In this case, you may decide to mark a space fill font as high quality, and have it available in the base font list and for formatting purposes in WordPerfect.

For other printers, the only proportional spacing available may be in draft mode. In this case, you may want to mark a draft font as high quality in order to format documents in proportional spacing.

The question to ask is, "Compared to all other fonts of the same class on this printer, is the font high, medium, or draft quality?".

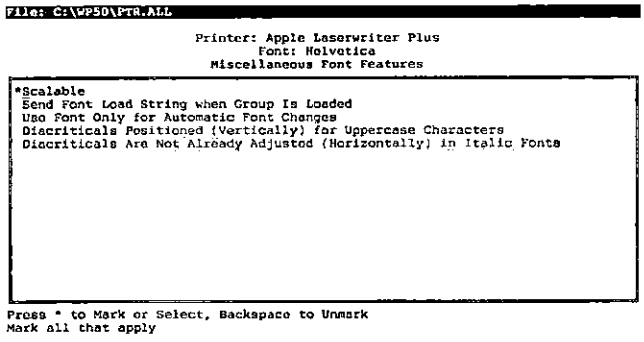
QUALITY Variable

When you select a print quality in WordPerfect at print-time, WordPerfect sets the QUALITY variable to the selected quality (0=draft, 1=medium, 2=high). Within the PRS or ALL file, the QUALITY variable can be used to determine which commands should be sent to the printer, but such commands should not change the current typeface, pitch, or other font attributes. If they do, then specify a font change rather than a quality change.

For example, the Star NB24-15 could be defined to print in Pica for draft quality, emphasized for medium quality, and NLQ for high quality. All three qualities would be marked (*), and the font selection string would test QUALITY to determine which commands to send to the printer.

Miscellaneous Font Features

When you select Miscellaneous Font Features, a list of options is displayed.


File: C:\WP50\PTR.ALL
Printer: Apple Laserwriter Plus
Font: Helvetica
Miscellaneous Font Features
*Scalable
Send Font Load String when Group Is Loaded
Use Font Only for Automatic Font Changes
Diacriticals Positioned (Vertically) for Uppercase Characters
Diacriticals Are Not Already Adjusted (Horizontally) in Italic Fonts
Press * to Mark or Select, Backspace to Unmark
Mark all that apply

One or more options can be marked for the current font to provide such information as font scalability, AFC use, font group loading, and diacritical positioning.

Scalable

Mark this option if the printer can scale the font to any point size (from one point and larger). PostScript fonts should be marked as scalable.

Send Font Load String when Group is Loaded

Mark this option if all the fonts in a group should be loaded whenever any group is loaded. For example, some printers load all the fonts on a cartridge into memory as soon as you insert the cartridge into the printer.

Use Font Only for Automatic Font Changes

Mark this option if the font is not intended to be selected in WordPerfect, but can be used in the PRS file for AFCs. If marked, the font will not appear in the base font list in WordPerfect.

For example, a font that only has special symbols (and no text) would be selected as a character set AFC font, but probably never used as a base font in WordPerfect.

Diacriticals Positioned (Vertically) for Uppercase Characters

If a character is requested in a document that includes a diacritical, and the character does not exist in the current font (including AFCs and Substitute fonts), then WordPerfect creates a compound character if the character and diacritical are separately available in the font.

For example, if an "a umlaut" (¨) is entered in a document, but the character is not available, then WordPerfect will print the character by overstriking a lowercase "a" with an umlaut, if the "a" and the umlaut are both available.

The diacriticals in a font are normally positioned for either uppercase or lowercase characters. Mark this option if the font diacriticals are designed to be printed with uppercase (rather than lowercase) characters.

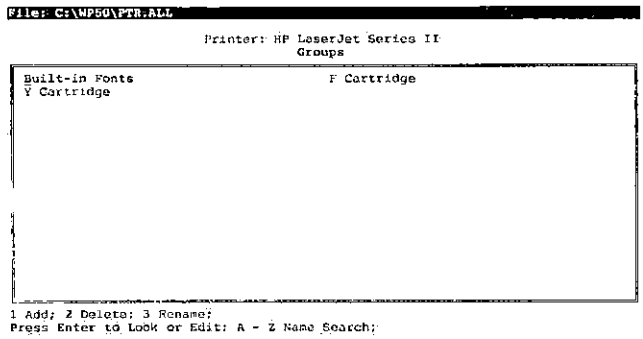
If marked, diacriticals are moved down for printing over lowercase characters. If not marked, diacriticals are moved up for printing over uppercase characters.

Diacriticals Are Not Already Adjusted (Horizontally) in Italic Fonts

Mark this option if, for italic or slanted fonts, diacriticals do not take into account the font slant (i.e., they appear where they would over non-slanted characters). The slant is defined with the font's typeface information.

Groups

When you select Groups from the Printer menu, a list of defined groups is displayed on the screen.



A group is a collection of fonts which are loaded and unloaded as a unit (e.g., fonts on a cartridge). Most soft fonts are loaded and unloaded as individual files, and do not need to be assigned to a group.

While in the list of groups, you can add, delete, or rename a group by selecting the appropriate option from the menu at the bottom of the list. When you finish, press **Exit** (F7) to return to the Printer menu.

If you are editing an ALL file, then the groups defined here are displayed as part of a resource when you select Fonts and Cartridges (5) from the Edit Printer menu in WordPerfect.

Adding a Group

A group can be added to the list by selecting Add (1), placing the cursor on a group to use as a pattern and pressing **Enter** (or **Ctrl-Enter** for a default group definition), and then entering a name for the group. If the list of groups is empty, the default definition is automatically selected as a pattern.

Deleting a Group

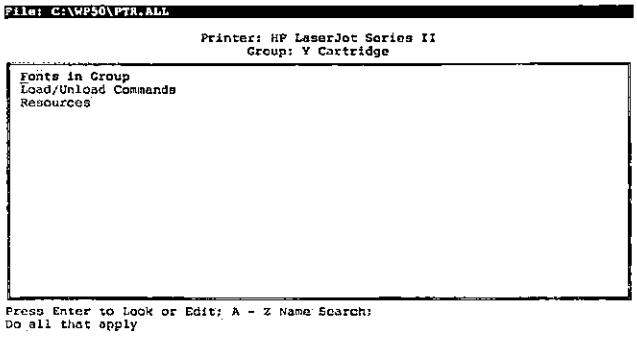
A group can be deleted from the list by placing the cursor on the group name, selecting Delete (2), and then typing **y**.

Renaming a Group

A group can be renamed by selecting Rename (3) and then entering a new name for the group.

Editing a Group

Once a group is added to the list, selecting the group (except for Built-in Fonts) displays the following options.



If you are creating a new group, you need to at least mark the fonts in the group and then mark the resource (i.e., cartridge). Some groups also require commands that allow WordPerfect to load and unload the fonts at the printer. Built-in fonts are those fonts that are permanently stored in the printer and do not need load and unload commands or need to be assigned to a resource.

When editing a resource, the groups which use the resource are marked with an asterisk (*).

Fonts in Group

Select this option to display a list of all the fonts defined for the current printer. Mark each font that belongs to the group by typing an asterisk next to the font name. After marking the fonts, press **Exit** (F7) to return to the Group menu.

Load/Unload Commands

Select this option to enter commands for loading and unloading the group of fonts. The GRPNUM variable can be used when entering the load command string to have WordPerfect assign a unique ID to the group.

Groups such as font cartridges normally do not need load and unload commands entered. However, if the cartridge is swappable during a print job (and is marked as such in the resource table), you may want to enter a load command similar to the following:

prompt ("Put Swiss Portrait cartridge in slot B") beep wait clearprompt

This command will have WordPerfect display the indicated prompt in the Control Printer menu, beep, and then wait for you to insert the cartridge and send a "Go" to continue the print job.

You may also want to enter a command that sends a message to the printer when the cartridge is unloaded.

After entering the command strings, press **Exit** (F7) to return to the Group menu.

Resources

Select this option to display a table of all the resources defined for the current printer.

File: C:\WP50\PTR.ALL

Printer: HP LaserJet Series II
Group: Y Cartridge
Resources

Resource Name	Font or Group Type	Quantity	Units	ID	Type/ Order	I
*Font Cartridge Slot	Cartridge Fonts	2		1	Fixed	N
Memory available for	Soft Fonts	3500	K	2	Load/Any	N

1=Intervention Required?

1 Add; 2 Delete; 3 Rename;
* Select; Backspace Unmark; Enter Look or Edit; A - Z Name Search;

A resource is anything in the design or hardware of the printer that limits the number of fonts or groups which can be loaded at a given time (e.g., memory for soft fonts, slots for font cartridges). Mark the resource to which the group of fonts should be assigned by typing an asterisk, and then press **Exit** (F7) to return to the Group menu.

Some groups may be able to use more than one resource, therefore, each resource should be marked in the table. For example, the IBM QuietWriter II has two slots for cartridges, with each slot identified by a number (0 and 1) instead of being generic. Because each slot can be addressed individually by WordPerfect, each slot can be listed as a separate resource in the table and marked for a font cartridge group.

At print-time, WordPerfect will move down the table through the marked slots (resources) until it finds one not currently being used, and will let you know in which slot to insert the cartridge with the needed font(s).

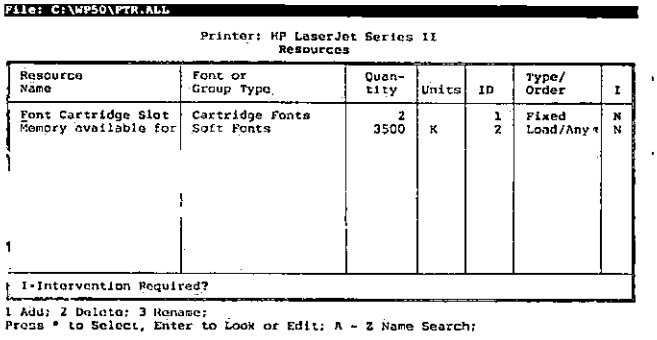
For other printers, the cartridge may use a slot, but the fonts on the cartridge also use the printer's memory. In this case, the font cartridge slot would be marked as a resource for the group, while memory would be marked as a resource for the font from the Font menu.

The primary purpose of the resource table at this level of the Printer program is to let you assign the group of fonts to a particular resource. While you can add, delete, rename, or edit a resource at this point, the original resource table can be displayed and edited by selecting Resources from the Printer menu.

For details on editing the Resources table, turn to the Resource heading in Reference.

Resources

When you select Resources from the Printer menu, a table of defined resources is displayed on the screen.


File: C:\WP50\PTR.ALL

Printer: HP LaserJet Series II
Resources

Resource Name	Font or Group Type	Quantity	Units	ID	Type/ Order	I
Font Cartridge Slot	Cartridge Fonts	2		1	Fixed	N
Memory available for	Soft Fonts	3500	K	2	Load/Any	N

I-Intervention Required?

1 Add; 2 Delete; 3 Rename;
Press * to Select, Enter to Look or Edit; A - Z Name Search;

A resource is anything in the design or hardware of the printer that limits the number of fonts or groups which can be loaded at a given time (e.g., memory for soft fonts, slots for font cartridges).

While in the table of resources, you can add, delete, or rename a resource by selecting the appropriate option from the menu at the bottom of the list. When you finish, press **Exit** (F7) to return to the Printer menu.

If you are editing an ALL file, then the resource name, font or group type, and quantity appear as part of the information in the Fonts and Cartridges list when you select Fonts and Cartridges (5) from the Edit Printer menu in WordPerfect.

Adding a Resource

A resource can be added to the list by selecting Add (1), placing the cursor on a resource to use as a pattern and pressing **Enter** (or **Ctrl-Enter** for a default resource definition), and then entering a name for the resource. If the list of resources is empty, the default definition is automatically selected as a pattern.

Deleting a Resource

A resource can be deleted from the list by placing the cursor on the resource name, selecting Delete (2), and then typing **y**.

Renaming a Resource

A resource can be renamed by selecting Rename (3) and then entering a new name for the resource.

Editing a Resource

Once a resource is added to the table, information can be edited by placing the cursor on the resource and then pressing **Right Arrow** or **Left Arrow** to move from item to item. Information for some items can be typed directly into the table, while other items require that you press **Enter** first to enter or select information. A message at the bottom of the table is updated for each item to indicate the appropriate action.

Resource Name

Enter a name that describes the resource (e.g., Font Cartridge Slots).

Font or Group Type

Enter a name that describes the type of fonts or groups which use this resource (e.g., Soft Fonts, Cartridge Fonts).

Quantity

Enter the number of resources available in terms of the units of measurement defined for the resource. For example, if the resource is font cartridge slots, enter the number of slots available, not the number of cartridges to be used with the printer. If the resource is memory for downloadable fonts, enter the amount of memory available for downloading fonts, not the number of fonts you want to download.

Units

Enter the units of measurement for the resource (e.g., **K** for kilobytes of memory).

ID = Resource ID Number

Enter a unique number that identifies the resource. At print-time, WordPerfect stores the ID in the RESOURCE variable at every font change. The variable may then be used in other command strings in the file to determine which resource is being used.

Type/Order

Select this option to display a list of methods printers use to load or swap fonts or groups. Mark the appropriate method by typing an asterisk, and then press **Exit** (F7) to return to the Resource table.

Fixed

Mark this method if the group or font is there all the way through the print job from beginning to end.

Swap/Any

Mark this method if the group or font can be swapped in and out of the printer at any time during a print job in any order. The font in memory that is least recently used is the font that is swapped out to free up memory for the incoming font.

Load/Any

Mark this method if the group or font can be loaded at any time (and in any order) during a print job, but other groups or fonts cannot be removed to make room for the new group or font. For example, if WordPerfect needs to load a Helvetica 10pt soft font into memory during a print job, there needs to be enough free memory for the font, or WordPerfect cannot load and use the font.

Swap/LIFO (Last In First Out)

Mark this method if the group or font can be swapped in and out of memory during a print job, but only in the order in which the fonts were loaded into memory. The last font loaded will be the first font unloaded. WordPerfect keeps a record of the unloaded fonts, and loads them again at the end of the print job to return the printer to the same state it was in when the print job started.

PostScript printers use the last in/first out method of loading and unloading fonts, and can unload fonts during the print job.

Load/LIFO

Mark this method if the group or font can be loaded into memory during a print job, but only unloaded at the end of the print job. The last font loaded will be the first font unloaded. WordPerfect keeps a record of the unloaded fonts, and loads them again at the end of the print job to return the printer to the same state it was in when the print job started.

Swap/Page

Mark this method if a group or font can be swapped out if it has not been used on the current page. If the printer runs out of memory for a font on the current page, the font will not be loaded or used. However, at the beginning of the next page, there may be enough room for the font, depending on how many fonts in memory are needed to print the page.

This feature was not implemented in the initial release of WordPerfect 5.0.

I = User Intervention Required?

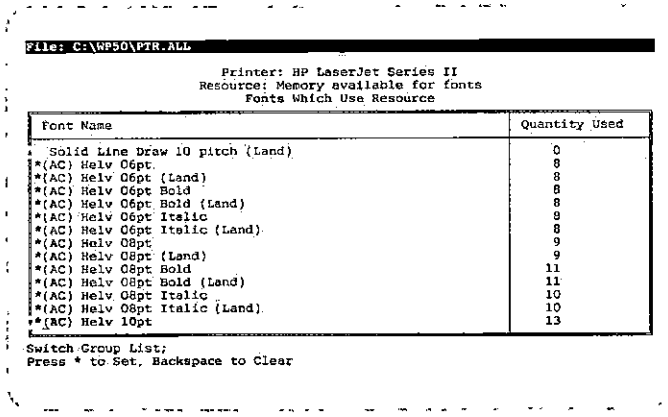
Type **y** or **n** to indicate whether loading of fonts or groups into this resource requires a manual action (i.e., inserting a font cartridge).

Marking Fonts/Groups Which Use Resource

Each resource in the table needs to be identified as belonging to at least one font or group. The identification is done by pressing **Enter** with the cursor on the resource name, and then pressing **Switch** (Shift-F3) to toggle between a menu of fonts and a menu of resources. Mark at least one font or group for the resource, and then press **Exit** (F7) to return to the Resource table.

Fonts Which Use Resource

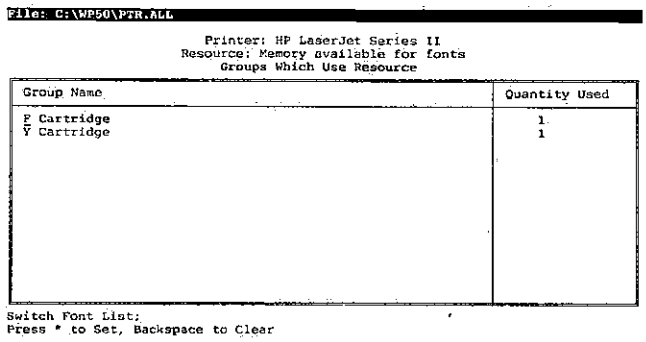
The list of fonts which use the resource includes all the fonts defined for the current printer, with those fonts marked which use the resource (e.g., soft fonts).


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Resource: Memory available for fonts
Fonts Which Use Resource
Font Name
Quantity Used
Solid Line Draw 10 pitch (Land) 0
*(AC) Helv 06pt 8
*(AC) Helv 06pt (Land) 8
*(AC) Helv 06pt Bold 8
*(AC) Helv 06pt Bold (Land) 8
*(AC) Helv 06pt Italic 9
*(AC) Helv 06pt Italic (Land) 8
*(AC) Helv 08pt 9
*(AC) Helv 08pt (Land) 9
*(AC) Helv 08pt Bold 11
*(AC) Helv 08pt Bold (Land) 11
*(AC) Helv 08pt Italic 10
*(AC) Helv 08pt Italic (Land) 10
**(AC) Helv 10pt 13
Switch Group List;
Press * to Set, Backspace to Clear

The amount listed for each font indicates the amount of printer memory required by the font. If a font is marked for the resource, then a group does not normally need to be marked. If a font is part of a group then only the group needs to be marked (and not the individual font).

Groups Which Use Resource

The list of groups which use the resource includes all the groups defined for the current printer, with those groups marked which use the resource (e.g., cartridges for font cartridge slots).


File: C:\WP50\PTR.ALL

Printer: HP LaserJet Series II
Resource: Memory available for fonts
Groups Which Use Resource

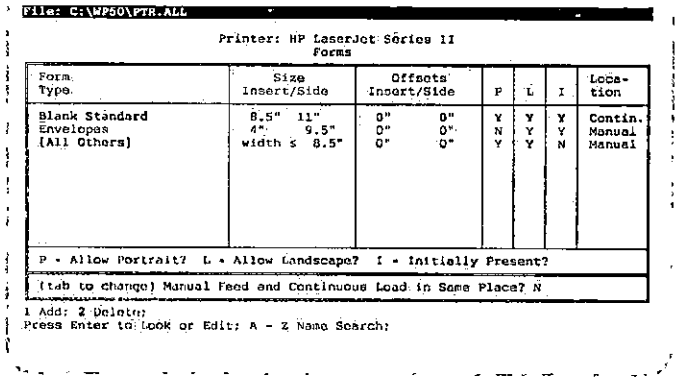
Group Name	Quantity Used
F Cartridge	1
V Cartridge	1

Switch Font List:
Press * to Set, Backspace to Clear

The amount listed for each resource indicates the amount of the resource that the group requires. If a group is marked as using a resource, then marking fonts is usually not necessary.

Forms

When you select Forms from the Printer menu, a table of available forms is displayed on the screen.


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Forms
Form Type
Size Insert/Side
Offsets Insert/Side
P
L
I
Location
Blank Standard 8.5" 11" 0" 0" Y Y Y Contin.
Envelopes 4" 9.5" 0" 0" N Y Y Manual
(All Others) width ≤ 8.5" 0" 0" Y Y N Manual
P - Allow Portrait? L - Allow Landscape? I - Initially Present?
(Tab to change) Manual Feed and Continuous Load in Same Place? N
1 Add; 2 Delete;
Press Enter to Look or Edit; A - Z Name Search:

Forms refers to the location of a form at the printer. A form is any sheet on which a printer can print. By using a standard name for the same form at all printers, then WordPerfect is able to find the correct paper at any printer for a particular document.

For example, there may be a dot matrix, daisy wheel, and laser printer all in the same office. The letterhead for the dot matrix printer needs to be hand fed, the letterhead for the daisy wheel printer is in bin 2, while the letterhead for the laser printer can be hand fed or set in the tray before printing.

By defining a letterhead form for each of these printers, indicating how and where the paper is fed, the same document can be taken to each printer, and WordPerfect will find the letterhead (daisy wheel printer), or indicate what you need to do to print the document on letterhead paper (dot matrix and laser printers).

While in the table of forms, you can add, delete, or rename a form by selecting the appropriate option from the menu at the bottom of the list. When you finish, press **Exit** (F7) to return to the Printer menu.

If you are editing a PRS file, the forms listed here are those that are displayed in WordPerfect when you select Forms (4) from the Edit Printer menu. If you edit the list of forms in WordPerfect, the editing changes are reflected in this table.

Adding a Form

A form can be added to the list by selecting Add (1), placing the cursor on a form to use as a pattern and pressing **Enter**, or pressing **Ctrl-Enter** to insert a default form definition. If the table of forms is empty, the default definition is automatically inserted as a pattern.

Deleting a Resource

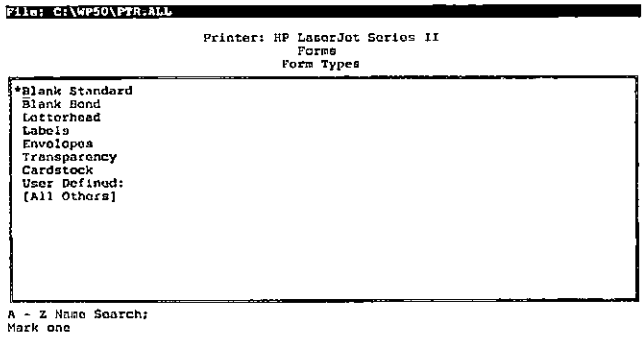
A form can be deleted from the table by placing the cursor on the form, selecting Delete (2), and then typing **y**.

Editing a Form

Once a form is added to the list, information can be edited by placing the cursor on the form and then pressing **Right Arrow** (or **Left Arrow**) to move from item to item. Information for some items can be typed directly into the table, while other items require that you press **Enter** first to enter or select information. A message at the bottom of the table is updated for each item to indicate the appropriate action.

Form Type

Place the cursor on the form type and press **Enter** to display a list of standard form types.



A form type is a description that indicates the use of a form, and is used by WordPerfect to identify the same form as a document is moved from printer to printer. Mark the form type being defined by typing an asterisk next to the form type name, and then press **Exit** (F7) to return to the Forms table.

If the same form type exists at all printers, then WordPerfect can identify the correct location of the form. Otherwise, the [All Others] information is used by WordPerfect for printing the document. For this reason, an [All Others] form (along with a Blank Standard form) should always be defined when setting up a PRS or ALL file.

A unique form type can be created by marking User Defined and then entering a form type name. However, if this form type does not exist at another printer, then WordPerfect uses the [All Others] form type information to print the document.

Size (Insert/Side)
Enter the physical size (in inches) of the inserted edge (usually the width) and side (usually the length) of the form.

Offset (Insert/Side)
Printers (such as dot matrix or daisy-wheel) often need minor adjustments to the position of the paper as it is fed into the printer to make sure that it aligns at the "0" position. If it is difficult to do this adjusting at the printer, you can enter offset values (in inches) for the form that let WordPerfect compensate for the alignment.

Enter the distance between top edge of the page (insert edge) and the top-most printing position, and/or enter the distance (in inches) between the left edge of the page (side edge) and the left-most printing position. Enter a negative number to adjust to the right or down, and a positive number to adjust to the left or up.

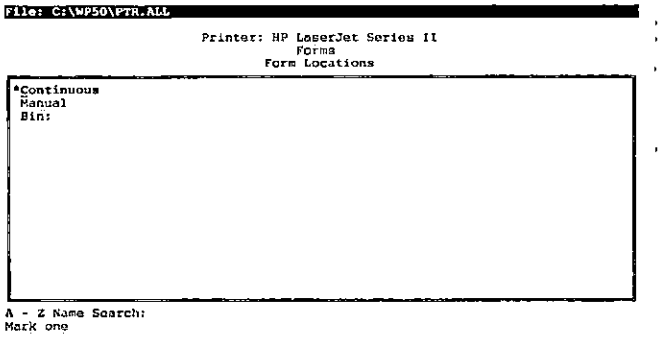
P = Allow Portrait?
Type **y** to indicate that portrait printing should be allowed on the form, otherwise, type **n**.

L = Allow Landscape?
Type **y** to indicate that landscape printing should be allowed on the form, otherwise, type **n**.

I = Initially Present
Type **y** if the form is present in the printer when WordPerfect begins printing, otherwise, type **n**. In other words, type **n** if WordPerfect should prompt you for the form. If the printer already prompts you with a message or bell, then type **y** to indicate that the form is initially present.

Location

Place the cursor on the form location and press **Enter** to display a list of standard locations for forms on a printer.



Mark the item that best describes the location of the form (continuous, manual, or bin), and then press **Exit** (F7) to return to the Forms table.

Continuous

A continuous location indicates that the form comes from the printer's continuous form feeder, and is always present at print-time. The feeder can be a paper tray in a laser printer, or simply the standard continuous forms (often with perforations) that are automatically fed into a dot matrix printer.

Manual

A manual location indicates that WordPerfect should wait for a "Go" from the Control Printer menu before starting the print job. This pause lets you manually insert the form into the printer.

Bin:

A bin location indicates that the form comes from a sheet feeder bin. After selecting Bin, enter the bin number in which the form is located. The bin number needs to be defined in the Sheet Feeder menu before WordPerfect can select the paper from the bin.

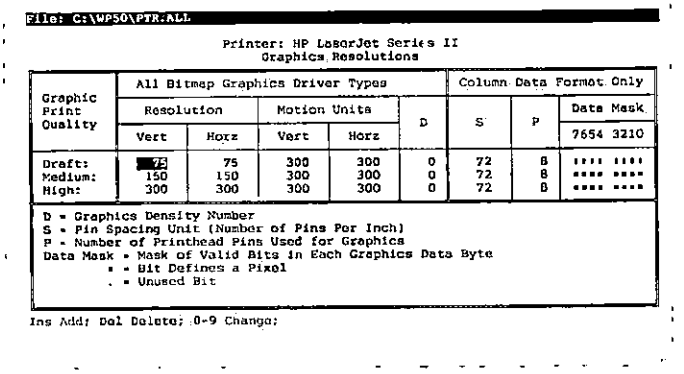
For details on defining a sheet feeder for the printer, turn to the Sheet Feeder section in Reference.

Manual Feed and Continuous Load

As part of defining forms for the current printer, WordPerfect needs to know if manual and continuous forms are fed into the printer at the same place. This question is located at the bottom of the Forms table and can be answered by pressing **Tab** to move the cursor to the question, and then typing **y** or **n** for Yes or No. Press **Tab** again to move back into the Forms table.

Graphics Resolutions

When you select this option from the Printer menu, a table is displayed that lists information WordPerfect needs to print graphics in draft, medium, and high resolutions.



File: C:\WP50\PTR.ALL

Printer: HP LaserJet Series II
Graphics Resolutions

Graphic Print Quality	All Bitmap Graphics Driver Types					Column Data Format Only		
	Resolution		Motion Units		D	S	P	Data Mask
	Vert	Horz	Vert	Horz				7654 3210
Draft:	75	75	300	300	0	72	8	▪▪▪▪ ▪▪▪▪
Medium:	150	150	300	300	0	72	8	▪▪▪▪ ▪▪▪▪
High:	300	300	300	300	0	72	8	▪▪▪▪ ▪▪▪▪

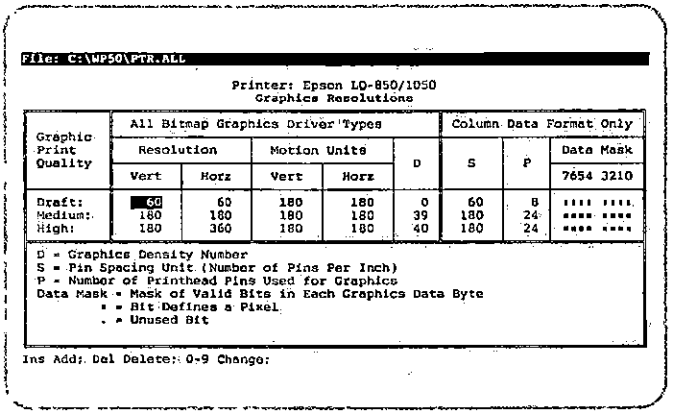
D = Graphics Density Number
S = Pin Spacing Unit (Number of Pins Per Inch)
P = Number of Printhead Pins Used for Graphics
Data Mask = Mask of Valid Bits in Each Graphics Data Byte
▪ = Bit Defines a Pixel
. = Unused Bit

Ins Add; Del Delete; 0-9 Change;

For details on setting draft, medium, and high resolutions for printing text, turn to the Quality heading under Fonts in Reference.

There are two basic methods of printing graphics—bitmap and column data format. Bitmap graphics is the method used by laser printers to draw a graphics image. The image is drawn a line of dots at a time (rastering). Column data format is the method used by most dot matrix printers, and draws the graphics image a vertical column of dots at a time.

In the example above, the HP LaserJet Series II only needs information included for the resolution and motion units (bitmap). However, in the example below, information is needed for resolution, motion units, *and* the printhead pins for WordPerfect to print graphics images with the Epson LQ-1050 printer (column data format).



File: C:\WP50\PTR.ALL

Printer: Epson LQ-850/1050
Graphics Resolutions

Graphic Print Quality	All Bitmap Graphics Driver Types					Column Data Format Only		
	Resolution		Motion Units		D	S	P	Data Mask
	Vert	Horz	Vert	Horz				7654 3210
Draft:	60	60	180	180	0	60	8	....
Medium:	180	180	180	180	39	180	24	***** *****
High:	180	360	180	180	40	180	24	***** *****

D = Graphics Density Number
S = Pin Spacing Unit (Number of Pins Per Inch)
P = Number of Printhead Pins Used for Graphics
Data Mask = Mask of Valid Bits in Each Graphics Data Byte
* = Bit Defines a Pixel
. = Unused Bit

Ins Add; Del Delete; 0-9 Change:

If you select High resolution in WordPerfect for printing graphics, and no information exists in the table for High, then the Medium information is used. If no information for Medium exists, then the Draft information is used. The same is true of Medium resolution.

Adding a Resolution

Adding information for a resolution to the table can be done by placing the cursor on the resolution and pressing **Ins**. Enter a vertical and horizontal resolution, and then the rest of the items are filled out for you with default settings.

If you insert a new Draft or Medium resolution, then existing information for Medium or High resolution is moved up one spot. The resolutions are also numerically sorted by the vertical and horizontal resolution so that the lowest resolution is always assigned to draft, next lowest to medium, etc.

Deleting a Resolution

Deleting a resolution for a quality can be done by placing the cursor on Draft, Medium, or High and pressing **Del**. Because there always needs to be information for the Draft resolution, information for the Medium and High resolutions (if it exists) will move into the draft slot if you delete the draft information.

Editing a Resolution

Once information is added to the table for a resolution, the information can be edited by placing the cursor on the resolution, pressing **Right Arrow** (or **Left Arrow**) to move from item to item, and then typing a new value for the item. As soon as you begin typing, the value is placed at the bottom of the table with a message indicating the value you are editing. After typing the new value, press **Enter** to place it in the table.

The only exception to entering information in the resolution table is the Data Mask. With the cursor on the data mask information, type one of the bit numbers to indicate whether the bit is used or unused. By continuing to type the number, the mask toggles between a period (unused) and a reverse video block (used).

Resolution (Vertical and Horizontal)

Enter the number of vertical and horizontal dots per inch that can be printed. At print-time, WordPerfect stores these values in the XRESOLUTION and YRESOLUTION variables.

Any vertical resolution may be entered if it is both a multiple of the printhead's pins per inch and a divisor of the vertical motion units.

Motion Units (Vertical and Horizontal)

Enter the number of vertical and horizontal units per inch that the printhead can move while in graphics printing mode.

D = Graphics Density Number

Enter a unique number that identifies the current graphics mode (draft, medium, or high). The number might be an ASCII value that represents the horizontal resolution, or the printing density. At print-time, WordPerfect places this value in the GRAPHDENSITY variable for use in graphics commands sent to the printer.

For example, on an Epson printer, this value could be 75 (K) for regular density graphics or 76 (L) for double density. The graphics density number can be used for either bitmap or column data graphics.

S = Pin Spacing Unit (Pins Per Inch)(column data format only)

Enter the distance between consecutive pins on the printhead in pins per inch (e.g., 180 for the Epson LQ-1050). The number may vary depending on the print quality.

P = Number of Printhead Pins Used for Graphics (column data format only)

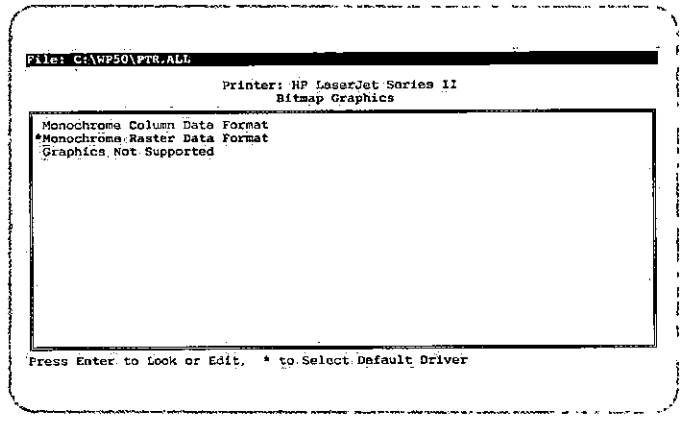
Enter the number of printhead pins used for graphics printing (e.g., 24 for the Epson LQ-1050). The number may vary depending on the print quality.

Data Mask (column data format only)

The data mask indicates significant bits in each data byte. To print a column of dots, a 24-pin printer may require four data bytes, each of six significant bits and two unused bits. WordPerfect gives each unused bit the value 0, unless (under the Column Bitmap Graphics, Data Format Flags screen) the Set Unused Bits in Data Bytes flag is marked.

Bitmap Graphics

When you select Bitmap Graphics from the Printer menu, a list is displayed that includes the two basic methods used to print bitmap graphics.

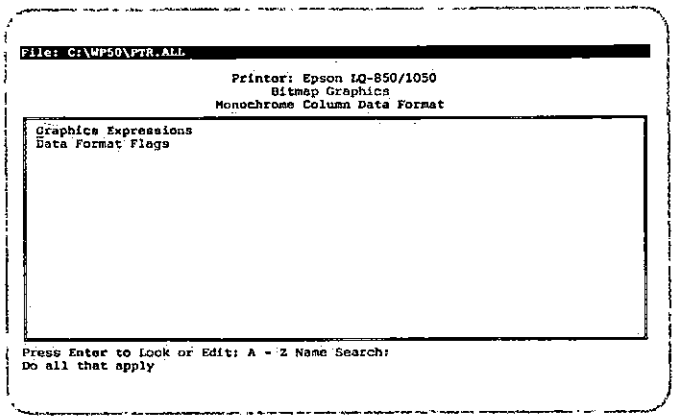

File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Bitmap Graphics
Monochrome Column Data Format
*Monochrome Raster Data Format
Graphics Not Supported
Press Enter to Look or Edit, * to Select Default Driver

Mark the appropriate method for the printer (or Graphics Not Supported) by typing an asterisk next to the method, and then press **Enter** to fill in the information needed by WordPerfect to support the printing of bitmap graphics. When you finish, press **Exit** (F7) twice to return to the Printer menu.

The printer manual should indicate if your printer supports bitmap graphics, and the method used to print the graphics.

Monochrome Column Data Format

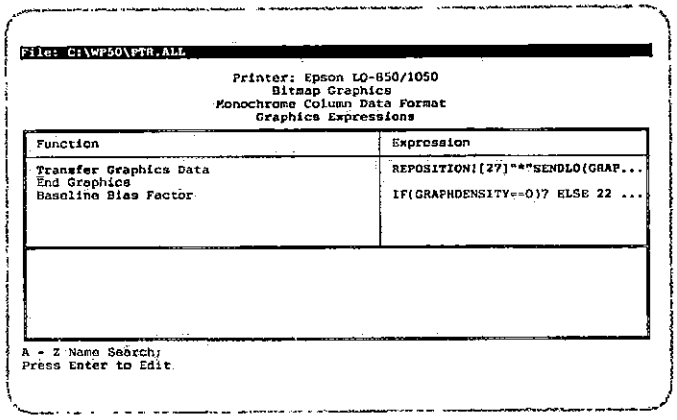
When you select Monochrome Column Data Format from the Bitmap Graphics menu, a menu is displayed that includes information about graphics expressions and data format flags. Information should be completed for both items for WordPerfect to print in the column data format.



The monochrome data format means that graphics data is accepted by the printer in multi-line rasters (a vertical column of dots) for each printhead position. Dot matrix printers usually print graphics in column data format (e.g., IBM Graphics, Epson).

Graphics Expressions

Select Graphics Expressions to display a menu that includes commands for controlling bitmap graphics printing in column data format.



Transfer Graphics Data

Enter a command string that turns on graphics in a given density for a given number of data bytes. The commands are sent at the beginning of each printhead pass of graphics printing. WordPerfect stores the density number from the Graphics Resolution table in the GRAPHDENSITY variable and the number of data bytes in the GRAPHCOUNT variable, both of which can be used in the command string.

End Graphics

Enter a command string that turns off graphics printing. The commands are sent at end of each printhead pass of graphics printing.

Baseline Bias Factor

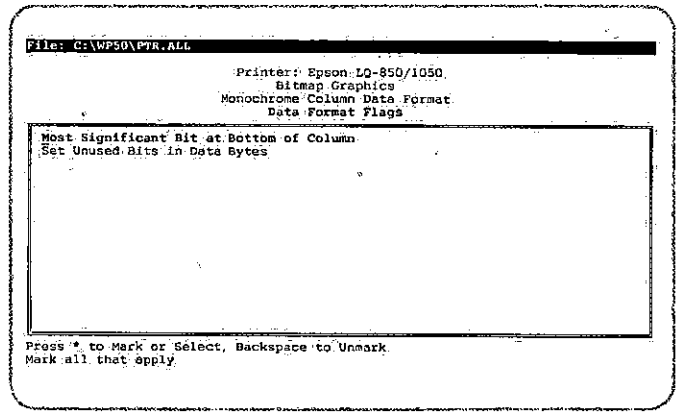
Graphics are normally positioned from the top pin of the printhead, while text for the built-in fonts of a printer are normally positioned from the baseline pin (near the bottom of the printhead).

In order to help WordPerfect adjust graphics printing to align with text printing, enter the pin number (counting down from the top of the printhead) of the baseline for the Baseline Bias Factor. For example, the baseline bias of a 9-pin printhead is normally 7.

The baseline bias factor can be determined by printing a text box in WordPerfect with a line of text at the bottom of the box. Set the options to 0 inches of inside spacing, and then print the box. If the number you have entered for the baseline bias factor is correct, then the top of the text will just barely touch the top border of the box. If the number is incorrect, keep adjusting the number a pin at a time and reprinting the box until you get the correct value.

Data Format Flags

Select Data Format Flags to display a list of two formats that define the data bytes sent to the printer.


File: C:\WP50\PTR.ALL
Printer: Epson LQ-850/1050
Bitmap Graphics
Monochrome Column Data Format
Data Format Flags
Most Significant Bit at Bottom of Column
Set Unused Bits in Data Bytes
Press * to Mark or Select, Backspace to Unmark
Mark all that apply

Most Significant Bit at Bottom of Column

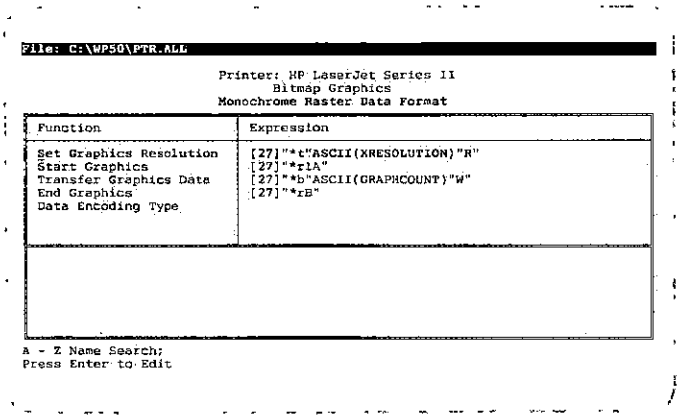
Marking this option indicates that the bottom-most pin of the printhead (rather than the top-most pin) corresponds to the most significant bit of the data byte. If this item is marked incorrectly, then each pass of the printed graphics will be upside down.

Set Unused Bits in Data Bytes

Marking this option indicates that any unused bits in the data mask of the Graphics Resolution Table should be set to 1 (rather than 0). Some printers require that the unused bits be set to 1, while others require that the unused bits be set to 0. Other printers simply ignore the unused data bytes, and it does not matter if the option is marked or unmarked.

Monochrome Raster Data Format

When you select Monochrome Raster Data Format from the Bitmap Graphics menu, the following menu is displayed.



The raster data format indicates that the printer can print individual rasters (i.e., pixels) horizontally in a line at each printhead position. Laser printers usually print graphics in raster data format (e.g., HP LaserJet Series II).

Enter the appropriate commands for each item in the menu, and then press **Exit** (F7) to return to the Bitmap Graphics menu.

Set Graphics Resolution

Enter a command string that sets the printer to a specified resolution at the beginning of a figure. At print-time, WordPerfect stores the resolution in the XRESOLUTION and YRESOLUTION variables. The commands are sent at the beginning of a graphics figure.

For example, the **[27] "*t" ASCII(XRESOLUTION) "R"** command could be sent for the HP LaserJet Series II printer to set the graphics resolution.

Start Graphics

Enter a command string that initializes graphics printing. The commands are sent at the beginning of a graphics figure.

For example, the **[27] "*r1A"** command could be sent for the HP LaserJet Series II to initialize graphics printing.

Transfer Graphics Data

Enter a command string that indicates the number of graphics data bytes, and is sent at the beginning of each horizontal raster line. At print-time, WordPerfect stores the number of bytes in the GRAPHCOUNT variable.

For example, the [27] **"*b" ASCII(GRAPHCOUNT) "W"** command could be sent for the HP LaserJet Series II printer to indicate the number of graphics data bytes.

End Graphics

Enter the commands that turn off graphics printing at the end of the graphics figure. The commands are sent at the end of a graphics figure.

For example, the [27] **"*rB"** command could be sent for the HP LaserJet Series II printer to turn off graphics printing.

Data Encoding Type

The data in the horizontal raster line can be encoded and sent in one of several different formats by WordPerfect, depending on the format the printer accepts.

If each byte of date sends eight pixels, then leave the data encoding type blank or enter **0**. If the data bytes are sent a sixel (six pixel) format (least significant 6 bits), then type **1** if the offset value added to the six pixels is a 3F hexadecimal code, or type **2** if the offset value added to the six pixels is a 40 hexadecimal code. The offset value should be listed in your printer manual.

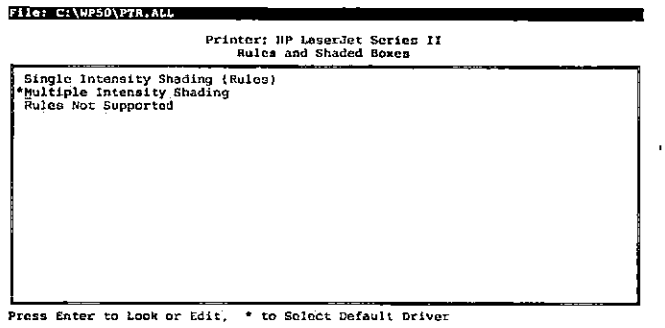
The only two printers currently defined by WordPerfect Corporation that use the sixel encoding are the Quadram QuadLaser and the Xerox 4045.

Graphics Not Supported

Mark this item if the printer has no bitmap graphics capabilities (e.g., Diablo 630).

Rules and Shaded Boxes

When you select Rules and Shaded Boxes from the Printer menu, a list is displayed that includes the two basic methods used to print rules and shaded boxes.


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Rules and Shaded Boxes
Single Intensity Shading (Rules)
*Multiple Intensity Shading
Rules Not Supported
Press Enter to Look or Edit, * to Select Default Driver

Rules and shaded boxes are basically the capability of the printer to print rectangular boxes. A rule is printed in either black or white, while a shaded box can be printed in several intensities of gray shading (instead of just black or white). If the Rules and Shaded Boxes feature is not supported by a printer, then WordPerfect creates rules and boxes with the graphics capabilities of the printer (at a slower rate of printing speed).

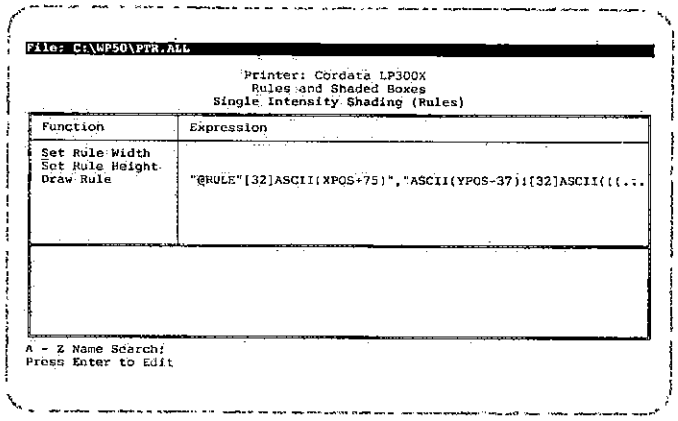
A horizontal or vertical line created in WordPerfect is nothing more than a thin rectangular box that is black or a shade of gray (if the printer supports gray shading). Borders are built by printing a rule for each side of the border, while the shading inside the box is another rule that is shaded (if the printer supports gray shading).

Mark the appropriate method for the printer (or Rules Not Supported) by typing an asterisk next to the method, and then press **Enter** to fill in the information needed by WordPerfect to support the printing of rules and shaded boxes. When you finish, press **Exit** (F7) twice to return to the Printer menu.

Some laser printers (e.g., HP LaserJet Series II) have built-in rule printing features. Many other printers can print rules but may require complex graphics control commands to do so. If the printer does not have a built-in rules feature, but can print graphics, mark Rules Not Supported to have WordPerfect create the rules and shaded boxes graphically for you.

Single Intensity Shading (Rules)

Marking single intensity shading indicates that all rules and boxes are printed with a single shading intensity (e.g., black), color, or pattern. After marking single intensity shading, press **Enter** to enter commands that let WordPerfect print rules in single intensity shading.



Set Rule Width

Enter a command string that sets the rule to a specified width. At print-time, WordPerfect stores the width in the GRAPHWIDTH variable.

Set Rule Height

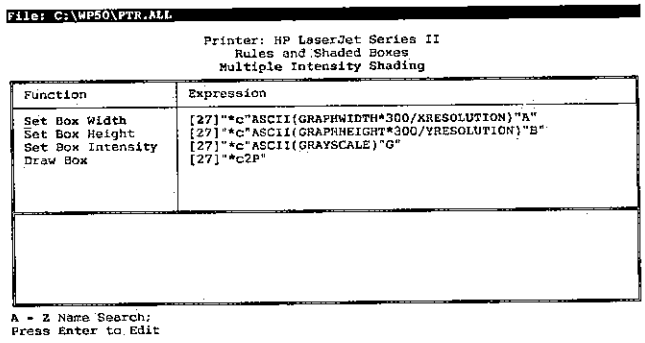
Enter a command string that sets the rule to a specified height. At print-time, WordPerfect stores the height in the GRAPHHEIGHT variable.

Draw Rule

Enter a command string that prints the defined rule. If the width and height for the rule can be set with one command string, then the string can be included with the Draw Rule command.

Multiple Intensity Shading

Marking multiple intensity shading indicates that boxes (or rules) may be printed in various shading intensities (e.g., black, 10% gray, 20% gray), colors, or patterns. After marking single intensity shading, press **Enter** to enter commands that let WordPerfect print rules and boxes in multiple shading intensities.



File: C:\WP50\PTR.ALL

Printer: HP LaserJet Series II
Rules and Shaded Boxes
Multiple Intensity Shading

Function	Expression
Set Box Width	[27]"*c"ASCII(GRAPHWIDTH*300/XRESOLUTION)"A"
Set Box Height	[27]"*c"ASCII(GRAPHHEIGHT*300/YRESOLUTION)"B"
Set Box Intensity	[27]"*c"ASCII(GRAYSCALE)"G"
Draw Box	[27]"*c2P"

A - Z Name Search:
Press Enter to Edit

Set Box Width

Enter a command string that sets the box (or rule) to a specified width. At print-time, WordPerfect stores the width in GRAPHWIDTH variable. For example, the **[27] "*c" ASCII(GRAPHWIDTH) "A"** command could be entered to set the box width for the HP LaserJet Series II printer.

Set Box Height

Enter a command string that sets the box (or rule) to a specified height. At print-time, WordPerfect stores the height in the GRAPHHEIGHT variable. For example, the **[27] "*c" ASCII(GRAPHHEIGHT) "A"** command could be entered to set the box height for the HP LaserJet Series II printer.

Set Box Intensity

Enter a command string that sets the box (or rule) to a specified shading intensity. At print-time, WordPerfect stores the intensity in the GRAYSCALE variable. For example, the **[27] "*c" ASCII(GRAYSCALE) "G"** command could be entered to set the gray scale shading for the HP LaserJet Series II printer.

Draw Box

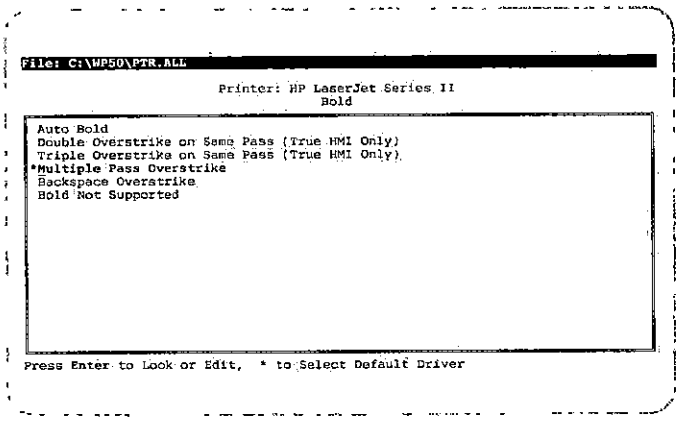
Enter a command string that prints the defined shaded box (e.g., [27] **"*c2P"** for the HP LaserJet Series II). If the width and height for the box can be set with one command string, then the string can be included with the Draw Box command.

Rules Not Supported

Mark this item if the printer has no gray shading or rule printing capabilities (e.g., Diablo 630), but has information entered for Graphics Resolutions and Bitmap Graphics in the Printer menu. WordPerfect uses this information to draw the rules and shaded boxes when no automatic feature exists at the printer.

Bold

When you select Bold from the Printer menu, a menu is displayed that lists five methods for printing bold text when no bold font has been defined for an automatic font change (AFC).


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Bold
Auto Bold
Double Overstrike on Same Pass (True HMI Only)
Triple Overstrike on Same Pass (True HMI Only)
*Multiple Pass Overstrike
Backspace Overstrike
Bold Not Supported
Press Enter to Look or Edit, * to Select Default Driver

Mark a method by typing an asterisk, and then enter the appropriate information. The method you select will be determined by the capabilities of your printer.

Daisy wheel printers that only use HMI for horizontal motion (no microspacing) normally use the double or triple overstrike method of bolding.

Auto Bold

Select this method if the printer has a bold feature that automatically prints bold text without changing the current font. Press **Enter** to display a menu where commands can be entered to turn the automatic bold feature on and off.

Double Overstrike on Same Pass (True HMI Only)

Select this method if you want WordPerfect to bold text by printing each character twice with a horizontal offset between the pair of printed characters. Press **Enter** to display a menu where the offset value (in 1200ths of an inch) can be entered.

The printer must use a true HMI (Horizontal Motion Index) for the offset to work correctly.

Triple Overstrike on Same Pass (True HMI Only)

Select this method if you want WordPerfect to bold text by printing each character three times with a horizontal offset between the first two characters, with the third character printed in the original position. Press **Enter** to display a menu where the offset value (in 1200ths of an inch) can be entered. The same value is used for each overstrike.

The printer must use a true HMI (Horizontal Motion Index) for the offset to work correctly.

Multiple Pass Overstrike

Select this method if you want WordPerfect to bold text by printing each character an indicated number of times on each pass of the printhead. A horizontal offset can be given for each pass.

Press **Enter** to display a menu where the number of passes (original and overstrikes) and horizontal offsets (in 1200ths of an inch) can be entered. An initial offset value can be entered for the first overstrike with an additional offset value for the remaining overstrikes. Because a minimum value of 2 is needed for the overstrike, entering a value of 0 or 1 is treated the same as the 2 value.

Backspace Overstrike

Select this method if you want WordPerfect to use the printer's backspace capabilities to bold characters. Press **Enter** to display a menu where the number of images (original and overstrikes) can be entered.

Because no horizontal offset is given for each overstrike, WordPerfect bolds the character by simply striking each time in the same spot. For this reason, you may want to limit the number of times the printhead strikes the page to prevent the paper from tearing.

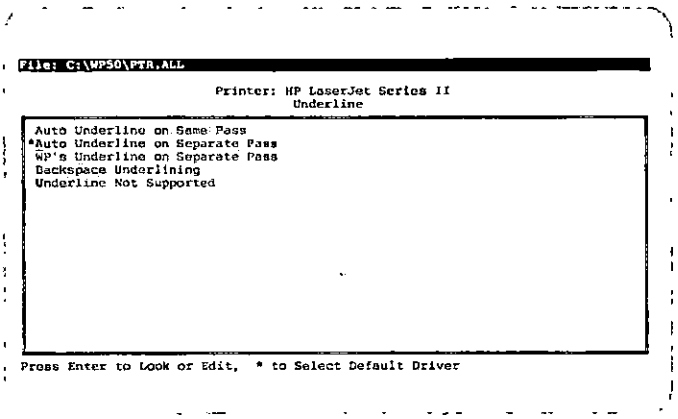
This method is designed for printers with very limited capabilities, and should only be used if no other alternative for bolding is possible.

Bold Not Supported

Mark this item if the printer has no capability for printing bold text.

Underline

When you select Underline from the Printer menu, a menu is displayed that lists five methods for printing underline text when no underline font has been defined for an automatic font change (AFC).


File: C:\WPSO\PTR.ALL
Printer: HP LaserJet Series II
Underline
Auto Underline on Same Pass
*Auto Underline on Separate Pass
WP's Underline on Separate Pass
Backspace Underlining
Underline Not Supported
Press Enter to Look or Edit, * to Select Default Driver

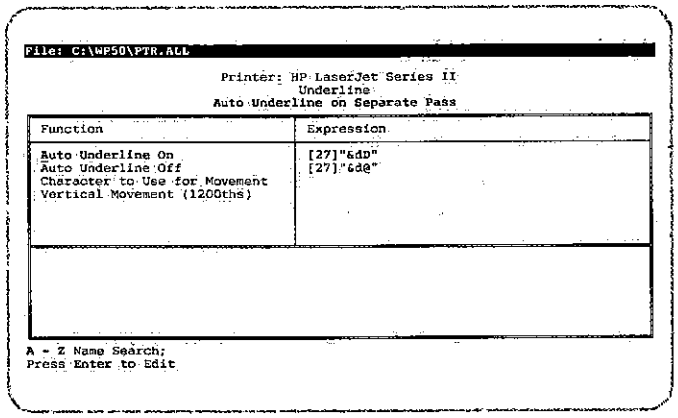
Mark a method by typing an asterisk, and then enter the appropriate information. The method you select will be determined by the capabilities of your printer.

Auto Underline on Same Pass

Select this method if the printer has an underline feature that automatically underlines and prints text on the same pass without changing the current font. Press **Enter** to display a menu where commands can be entered to turn the automatic underline feature on and off.

Auto Underline on Separate Pass

Select this method if the printer has an automatic underline feature, but you want to print the text on one pass and the underlining on another (without changing the current font). Press **Enter** to display the following menu for entering the information WordPerfect needs to print the underlining.



The separate pass method is useful for printers that cannot underline motion spaces (e.g., intra-word microspacing) on a text pass, or for adjusting the vertical position of an underline printed on a text pass.

Auto Underline On

Enter a command string that turns on the printer's underline feature.

Auto Underline Off

Enter a command string that turns off the printer's underline feature.

Character to Use for Movement

Enter the value of a WordPerfect character to use for the horizontal movement. The character will usually be a space (e.g., 32 or '').

The value is calculated by multiplying the character set number by 256 and then adding the character number in the set to the result. For example, the complete character set number of a space is 0,32. By multiplying 256 times 0 and adding 32 to the result (256*0+32), a value of 32 is obtained for the space character.

If the value is left blank, then the regular horizontal movement for the font will be used to move to the OFF position.

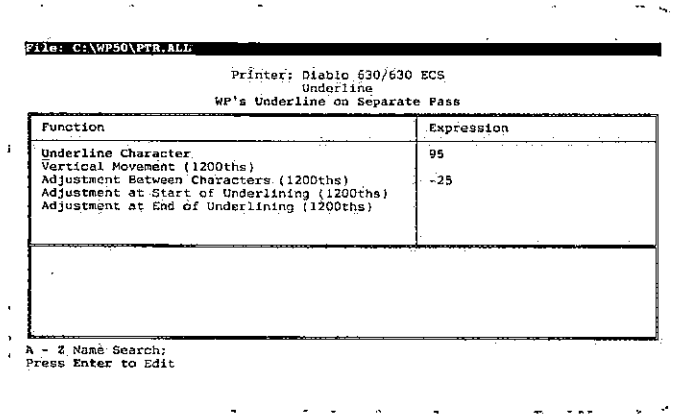
Vertical Movement (1200ths)

Enter a value for moving the vertical position of underline up or down. Since fonts of different sizes may need different vertical movements, the value should be entered as a command that takes into account the font size (e.g., PTSIZE/3 for down and -PTSIZE/3 for up).

Because the PTSIZE variable is stored in 3600ths of an inch (a multiple of 72 points), the point size needs to be divided by 3 to obtain a value for vertical movement in 1200ths of an inch.

WP's Underline on Separate Pass

Select this method if the printer has no underline feature, and you want WordPerfect to underline using a character on a second pass of the printhead. Press **Enter** to display the following menu for entering the information WordPerfect needs to print the underlining.



Underline Character

Enter the value of the WordPerfect character to use for underlining (e.g., 95 or '_' for an underscore, 45 or '-' for a dash).

The value is calculated by multiplying the character set number by 256 and then adding the character number in the set to the result. For example, the complete character set number of a dash is 0,45. By multiplying 256 times 0 and adding 45 to the result (256*0+45), a value of 45 is obtained for the dash character.

Vertical Movement (1200ths)
Enter a value for moving the vertical position of underline up or down. Since fonts of different sizes may need different vertical movements, the value should be entered as a command that takes into account the font size (e.g., PTSIZE/3 for down and -PTSIZE/3).

Because the PTSIZE variable is stored in 3600ths of an inch (a multiple of 72 points), the point size needs to be divided by 3 to obtain a value for vertical movement in 1200ths of an inch.

Adjustment Between Characters (1200ths)
Enter the distance (in 1200ths of an inch) that each underline character should be moved so that underline characters touch to form a continuous line. To find the correct distance, measure the amount of white space between two printed underline characters.

A positive number increases the distance between characters, while a negative number decreases the distance between characters. The value will usually be negative.

Adjustment at Start of Underlining (1200ths)
Enter the distance (in 1200ths of an inch) that the underline character should be printed to the right (positive number) or to the left (negative number) so that the first character of text is fully underlined. The distance should be about half the amount of white space between two printed underline characters.

Adjustment at End of Underlining (1200ths)
Enter the distance (in 1200ths of an inch) that the underline character should be printed to the right (positive number) or left (negative number) so that the last character is fully underlined. The distance should be about half the amount of white space between two printed underline characters.

Backspace Underlining

Select this method if you want WordPerfect to use the printer's backspace capabilities to underline characters. Press **Enter** to display a menu where the underline character (e.g., 95 or '_' for an underscore) and number of images (original and overstrikes) can be entered.

Because no horizontal offset is given for each overstrike, WordPerfect underlines the character by simply striking each time in the same spot. For this reason, you may want to limit the number of times the printhead strikes the page to prevent the paper from tearing.

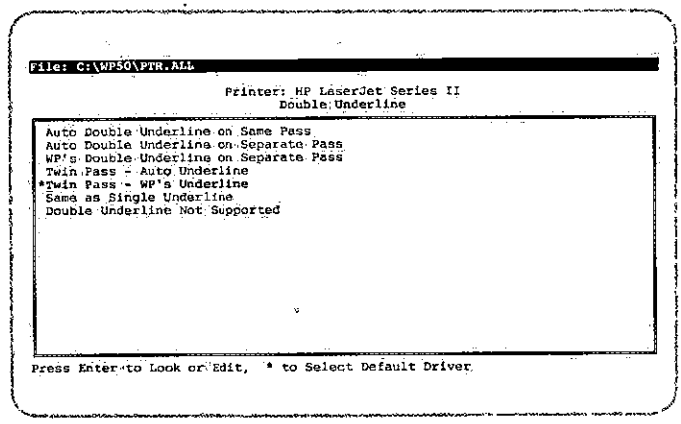
This method is designed for printers with very limited capabilities, and should only be used if no other alternative for underlining is possible.

Underline Not Supported

Mark this item if the printer has no capability for underlining text.

Double Underline

When you select Double Underline from the Printer menu, a menu is displayed that lists six methods for printing double underline text when no double underline font has been defined for an automatic font change (AFC).


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Double Underline
Auto Double Underline on Same Pass
Auto Double Underline on Separate Pass
WP's Double Underline on Separate Pass
Twin Pass - Auto Underline
*Twin Pass - WP's Underline
Same as Single Underline
Double Underline Not Supported
Press Enter to Look or Edit, * to Select Default Driver

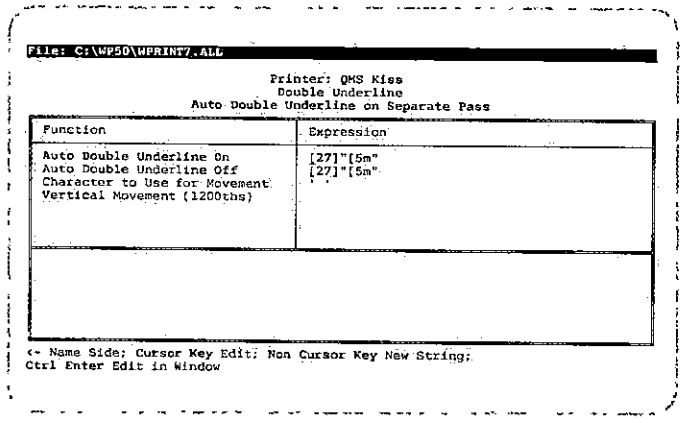
Mark a method by typing an asterisk, and then enter the appropriate information. The method you select will be determined by the capabilities of your printer.

Auto Double Underline on Same Pass

Select this method if the printer has a double underline feature that automatically underlines and prints text on the same pass without changing the current font. Press **Enter** to display a menu where commands can be entered to turn the automatic underline feature on and off.

Auto Double Underline on Separate Pass

Select this method if the printer has an automatic double underline feature, but you want to print the text on one pass and the underlining on another (without changing the current font). Press **Enter** to display the following menu for entering the information WordPerfect needs to print the double underlining.



The separate pass method is useful for printers that cannot double underline motion spaces (e.g., intra-word microspacing) on a text pass, or for adjusting the vertical position of an underline printed on a text pass.

Auto Double Underline On

Enter a command string that turns on the double underline feature.

Auto Double Underline Off

Enter a command string that turns off the double underline feature.

Character to Use for Movement

Enter the value of a WordPerfect character to use for the horizontal movement. The character will usually be a space (e.g., 32 or ' ').

The value is calculated by multiplying the character set number by 256 and then adding the character number in the set to the result. For example, the complete character set number of a space character is 0,32. By multiplying 256 times 0 and adding 32 to the result (256*0+32), a value of 32 is obtained for the space character.

If the value is left blank, then the regular horizontal movement for the font will be used to move to the OFF position.

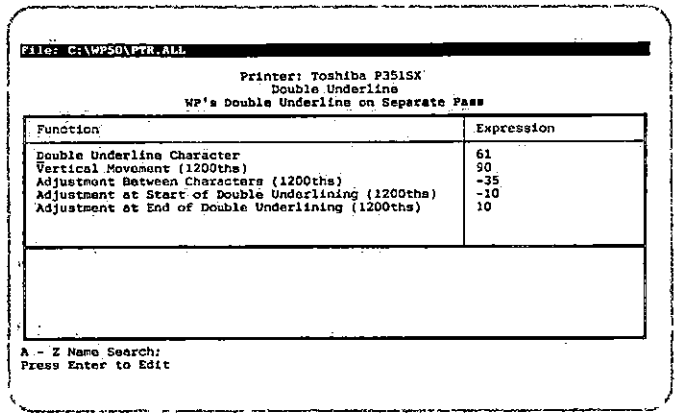
Vertical Movement (1200ths)

Enter a value for moving the vertical position of double underline up or down. Since fonts of different sizes may need different vertical movements, the value should be entered as a command that takes into account the font size (e.g., PTSIZE/3 for down and -PTSIZE/3 for up).

Because the PTSIZE variable is stored in 3600ths of an inch (a multiple of 72 points), the point size needs to be divided by 3 to obtain a value for vertical movement in 1200ths of an inch.

WP's Double Underline on Separate Pass

Select this method if the printer has no double underline feature, and you want WordPerfect to underline using a character on a second pass of the printhead. Press **Enter** to display the following menu for entering the information WordPerfect needs to print the double underlining.



Double Underline Character

Enter the value of the WordPerfect character to use for double underlining (e.g., 61 or '=').

The value is calculated by multiplying the character set number by 256 and then adding the character number in the set to the result. For example, the complete character set number of an equal sign 0,61. By multiplying 256 times 0 and adding 61 to the result (256*0+61), a value of 61 is obtained for the equal sign.

Vertical Movement (1200ths)
Enter a value for moving the vertical position of the double underline up or down. Since fonts of different sizes may need different vertical movements, the value should be entered as a command that takes into account the font size (e.g., PTSIZE/3 for down and -PTSIZE/3).

Because the PTSIZE variable is stored in 3600ths of an inch (a multiple of 72 points), the point size needs to be divided by 3 to obtain a value for vertical movement in 1200ths of an inch.

Adjustment Between Characters (1200ths)
Enter the distance (in 1200ths of an inch) that each double underline character should be moved so that underline characters touch to form a continuous line. To find the correct distance, measure the amount of white space between two printed double underline characters.

A positive number increases the distance between characters, while a negative number decreases the distance between characters. The value will usually be negative.

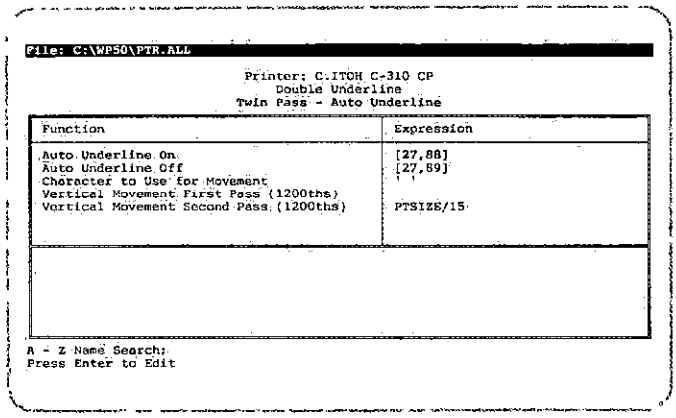
Adjustment at Start of Double Underlining (1200ths)
Enter the distance (in 1200ths of an inch) that the double underline character should be printed to the right (positive number) or to the left (negative number) so that first character of text is fully underlined. The distance should be about half the amount of white space between two printed double underline characters.

Adjustment at End of Double Underlining (1200ths)
Enter the distance (in 1200ths of an inch) that the double underline character should be printed to the right (positive number) or to the left (negative number) so that last character of text is fully underlined. The distance should be about half the amount of white space between two printed double underline characters.

Twin Pass — Auto Underline

Select this method if the printer has no double underline feature, but you want WordPerfect to use the printer's single underline feature to double underline text. The double underline is created by making two underline passes with a vertical offset between each pass.

Press **Enter** to display the following menu for entering the information WordPerfect needs to print the double underlining.



Auto Underline On
Enter a command string that turns on the printer's underline feature.

Auto Underline Off
Enter a command string that turns off the printer's underline feature.

Character to Use for Movement
Enter the value of a WordPerfect character to use for the horizontal movement. The character will usually be a space (e.g., 32 or '').

The value is calculated by multiplying the character set number by 256 and then adding the character number in the set to the result. For example, the complete character set number of a space character is 0,32. By multiplying 256 times 0 and adding 32 to the result (256*0+32), a value of 32 is obtained for the space character.

If the value is left blank, then the regular horizontal movement for the font will be used to move to the OFF position.

Vertical Movement First Pass (1200ths)
Enter a value for moving the vertical position of the first underline up or down. Since fonts of different sizes may need different vertical movements, the value should be entered as a command that takes into account the font size (e.g., PTSIZE/3 for down and -PTSIZE/3).

Because the PTSIZE variable is stored in 3600ths of an inch (a multiple of 72 points), the point size needs to be divided by 3 to obtain a value for vertical movement in 1200ths of an inch.

Vertical Movement Second Pass (1200ths)

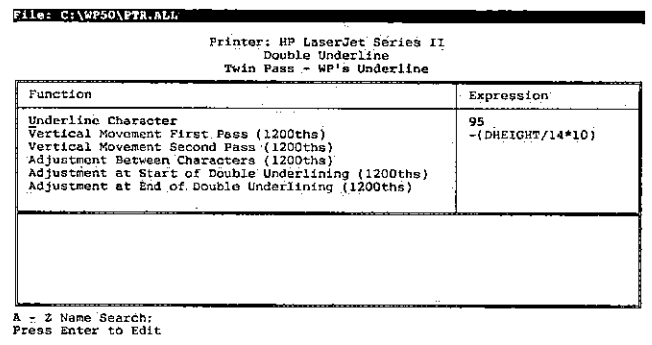
Enter a value for moving the vertical position of the second underline down from the first underline. Since fonts of different sizes may need different vertical movements, the value should be entered as a command that takes into account the font size (e.g., PTSIZE/3).

Because the PTSIZE variable is stored in 3600ths of an inch (a multiple of 72 points), the point size needs to be divided by 3 to obtain a value for vertical movement in 1200ths of an inch.

Twin Pass — WP's Underline

Select this method if the printer has no double underline feature and no character (e.g., '=') useful for double underlining. WordPerfect creates the double underline by using a character that can be vertically offset to create a single underline (e.g., '-'), and then printing the character on two separate passes.

Press **Enter** to display the following menu for entering the information WordPerfect needs to print the double underlining.



Underline Character

Enter the value of the WordPerfect character to use for underlining (e.g., 95 or '_' for an underscore, 45 or '-' for a dash).

The value is calculated by multiplying the character set number by 256 and then adding the character number in the set to the result. For example, the complete character set number of a dash is 0,45. By multiplying 256 times 0 and adding 45 to the result (256*0+45), a value of 45 is obtained for the space character.

Vertical Movement First Pass (1200ths)
Enter a value for moving the vertical position of the first underline up or down. Since fonts of different sizes may need different vertical movements, the value should be entered as a command that takes into account the font size (e.g., PTSIZE/3 for down and -PTSIZE/3).

Because the PTSIZE variable is stored in 3600ths of an inch (a multiple of 72 points), the point size needs to be divided by 3 to obtain a value for vertical movement in 1200ths of an inch.

Vertical Movement Second Pass (1200ths)
Enter a value for moving the vertical position of the second underline down from the first underline. Since fonts of different sizes may need different vertical movements, the value should be entered as a command that takes into account the font size (e.g., PTSIZE/3).

Because the PTSIZE variable is stored in 3600ths of an inch (a multiple of 72 points), the point size needs to be divided by 3 to obtain a value for vertical movement in 1200ths of an inch.

Adjustment Between Characters (1200ths)
Enter the distance (in 1200ths of an inch) that each double underline character should be moved so that underline characters touch to form a continuous line. To find the correct distance, measure the amount of white space between two printed double underline characters.

A positive number increases the distance between characters, while a negative number decreases the distance between characters. The value will usually be negative.

Adjustment at Start of Double Underlining (1200ths)
Enter the distance (in 1200ths of an inch) that the double underline character should be printed to the right (positive number) or to the left (negative number) so that first character of text is fully underlined. The distance should be about half the amount of white space between two printed double underline characters.

Adjustment at End of Double Underlining (1200ths)
Enter the distance (in 1200ths of an inch) that the double underline character should be printed to the right (positive number) or to the left (negative number) so that the last character of text is fully underlined. The distance should be about half the amount of white space between two printed double underline characters.

Same as Single Underline

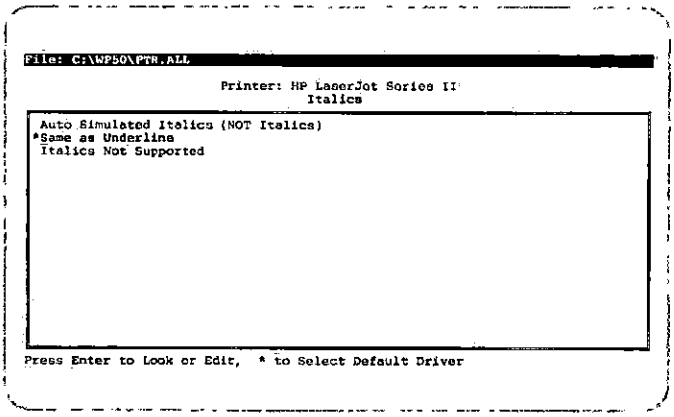
Select this method if you want WordPerfect to single underline text (when double underline is requested) using the underline AFC or the selected method in the Underline menu.

Double Underline Not Supported

Mark this item if the printer has no capability for double underlining text.

Italics

When you select Italics from the Printer menu, a menu is displayed that lists two methods for printing italicized text when no italics font has been defined for an automatic font change (AFC).


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Italics
Auto Simulated Italics (NOT Italics)
*Same as Underline
Italics Not Supported
Press Enter to Look or Edit, * to Select Default Driver

Mark a method by typing an asterisk, and then enter the appropriate information. If your printer does not include commands for simulating italics text, then you can choose to have WordPerfect underline the italicized text.

Auto Simulated Italics (NOT Italics)

Select this method if the printer has an automatic feature (e.g., reversed text, color printing) that you want to use to represent italics when printing a document. Press **Enter** to display a menu where commands can be entered to turn the automatic feature on and off.

Do *not* enter a printer command that automatically slants a font to create an italicized look. As soon as the text is slanted, the typeface information for the font will become incorrect.

If you want to use a printer's automatic oblique or slant command, then add a font, using the current font as a pattern, and then edit the typeface for the new font to indicate italics or oblique and enter the on and off commands for the automatic feature in this menu.

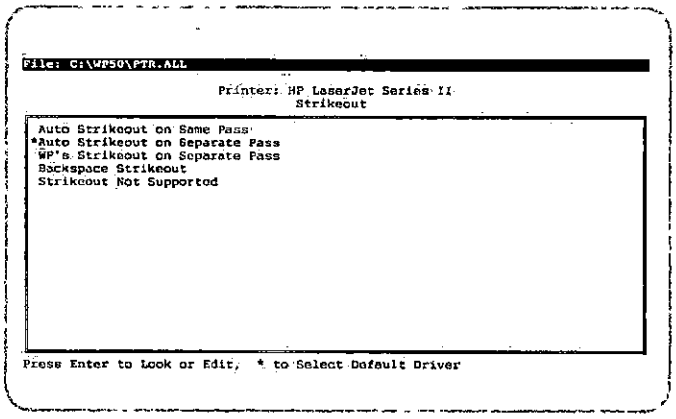
Because using the feature may cause diacriticals to be placed incorrectly over characters, an adjustment to diacritical placement can be made by using the Slant Adjust item located in the Proportions menu of the Typeface menu.

Same as Underline
Select this method if you want WordPerfect to use single underlining for italicized text (if no italics AFC has been selected).

Italics Not Supported
Mark this item if the printer has no italics capability, or all italics printing is done with automatic font changes (AFCs).

Strikeout

When you select Strikeout from the Printer menu, a menu is displayed that lists four methods for printing strikeout text when no strikeout font has been defined for an automatic font change (AFC).


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Strikeout
Auto Strikeout on Same Pass
*Auto Strikeout on Separate Pass
WP's Strikeout on Separate Pass
Backspace Strikeout
Strikeout Not Supported
Press Enter to Look or Edit, * to Select Default Driver

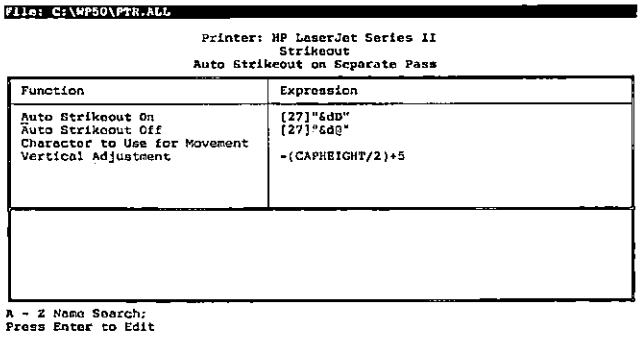
Mark a method by typing an asterisk, and then enter the appropriate information. The method you select will be determined by the capabilities of your printer.

Auto Strikeout on Same Pass

Select this method if the printer has a strikeout feature that automatically prints strikeout text in one printhead pass without changing the current font. Press **Enter** to display a menu where commands can be entered to turn the automatic strikeout feature on and off.

Auto Strikeout on Separate Pass

Select this method if the printer has a strikeout feature that automatically prints strikeout text by printing the text on one pass and the strikeout on another (without changing the current font). Press **Enter** to display the following menu for entering the information WordPerfect needs to print the strikeout text.



The separate pass method is useful for printers that cannot print a strikeout line through motion spaces (e.g., intra-word microspacing) on a text pass, or for adjusting the vertical position of a strikeout line printed on a text pass.

Auto Strikeout On

Enter a command string that turns on the strikeout feature.

Auto Strikeout Off

Enter a command string that turns off the strikeout feature.

Character to Use for Movement

Enter the value of a WordPerfect character to use for the horizontal movement. The character will usually be a space (e.g., 32 or '').

The value is calculated by multiplying the character set number by 256 and then adding the character number in the set to the result. For example, the complete character set number of a space character is 0,32. By multiplying 256 times 0 and adding 32 to the result (256*0+32), a value of 32 is obtained for the space character.

If the value is left blank, then the regular horizontal movement for the font will be used to move to the OFF position.

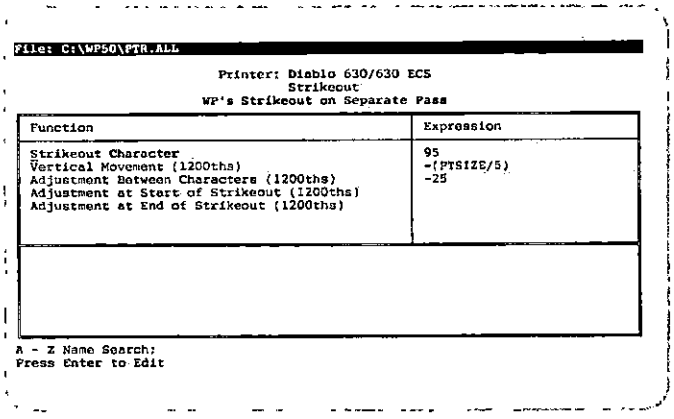
Vertical Adjustment

Enter a value for adjusting the vertical position of the strikeout line up or down. Since fonts of different sizes may need different vertical movements, the value should be entered as a command that takes into account the font size (e.g., PTSIZE/3 for down and -PTSIZE/3 for up).

Because the PTSIZE variable is stored in 3600ths of an inch (a multiple of 72 points), the point size needs to be divided by 3 to obtain a value for vertical movement in 1200ths of an inch.

WP's Strikeout on Separate Pass

Select this method if the printer has no strikeout feature, and you want WordPerfect to strikeout text using a character on a second pass of the printhead. Press **Enter** to display the following menu for entering the information WordPerfect needs to print the strikeout.



Because a horizontal adjustment for a character will often cause a printer to print slow and sporadic, WordPerfect prints a broken line for this method so that the print speed is much quicker.

Strikeout Character

Enter the value of the WordPerfect character to use for the strikeout (e.g., 45 or '- ').

The value is calculated by multiplying the character set number by 256 and then adding the character number in the set to the result. For example, the complete character set number of a dash is 0,45. By multiplying 256 times 0 and adding 45 to the result (256*0+45), a value of 45 is obtained for the dash character.

Vertical Movement (1200ths)
Enter a value for moving the vertical position of the strikeout character up or down. Since fonts of different sizes may need different vertical movements, the value should be entered as a command that takes into account the font size (e.g., PTSIZE/3 for down and -PTSIZE/3).

Because the PTSIZE variable is stored in 3600ths of an inch (a multiple of 72 points), the point size needs to be divided by 3 to obtain a value for vertical movement in 1200ths of an inch.

Adjustment Between Characters (1200ths)
Enter the distance (in 1200ths of an inch) that each strikeout character should be moved so that strikeout characters touch to form a continuous line. To find the correct distance, measure the amount of white space between two printed strikeout characters.

A positive number increases the distance between characters, while a negative number decreases the distance between characters. The value will usually be negative.

Adjustment at Start of Strikeout (1200ths)
Enter the distance (in 1200ths of an inch) that the strikeout character should be printed to the right (positive number) or to the left (negative number) so that the first character of text is fully underlined. The distance should be about half the amount of white space between two printed strikeout characters.

Adjustment at End of Strikeout (1200ths)
Enter the distance (in 1200ths of an inch) that the strikeout character should be printed to the right (positive number) or to the left (negative number) so that the last character of text is fully underlined. The distance should be about half the amount of white space between two printed strikeout characters.

Backspace Strikeout

Select this method if you want WordPerfect to use the printer's backspace capabilities to strikeout text. Press **Enter** to display a menu where the strikeout character (e.g., 45 or '-' for a dash) can be entered.

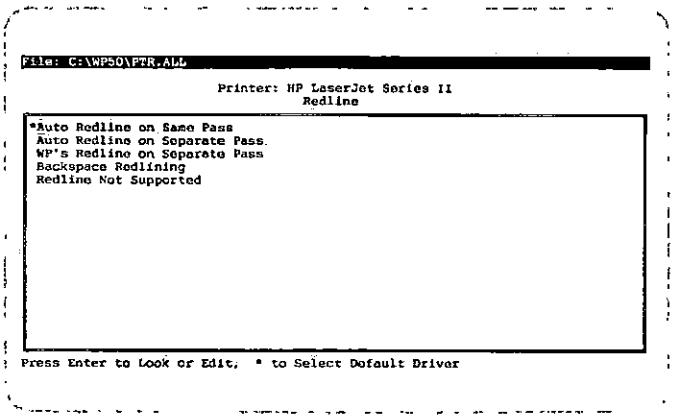
This method is designed for printers with very limited capabilities, and should only be used if no other alternative for strikeout is possible.

Strikeout Not Supported

Mark this item if the printer has no capability for printing strikeout text.

Redline

When you select Redline from the Printer menu, a menu is displayed that lists four methods for printing redlined text when no redline font has been defined for an automatic font change (AFC). Redlining is used to identify proposed additions to a document, usually by gray-shading the redlined text.


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Redline
*Auto Redline on Same Pass
Auto Redline on Separate Pass
WP's Redline on Separate Pass
Backspace Redlining
Redline Not Supported
Press Enter to Look or Edit, * to Select Default Driver

Mark a method by typing an asterisk, and then enter the appropriate information. The method you select will be determined by the capabilities of your printer.

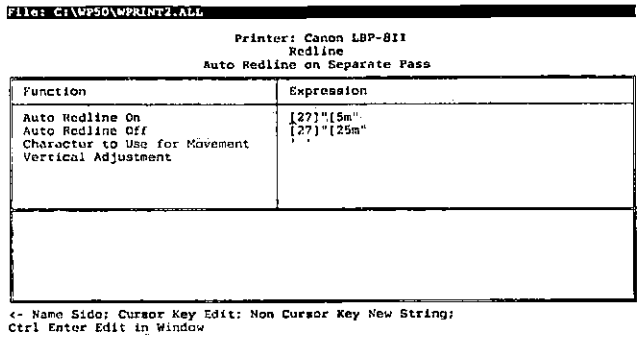
When defining printers at WordPerfect Corporation, the color red or the printer's built-in redline is the first choice for redlining, followed by a shaded background character (e.g., 768 or '▒') to print the redline on a separate pass. If a shaded character is not available, or is so dense it obscures the text, a graphic redline character may be created, depending on how long it takes the printer to print the character.

Auto Redline on Same Pass

Select this method if the printer has a redline feature that automatically prints redlined text in one printhead pass without changing the current font. Press **Enter** to display a menu where commands can be entered to turn the automatic redline feature on and off.

Auto Redline on Separate Pass

Select this method if the printer has an automatic redline feature, but you want to print the text on one pass and the redline on another (without changing the current font). Press **Enter** to display the following menu for entering the information WordPerfect needs to print the redlined text.



The separate pass method is useful for printers that cannot print a redline through motion spaces (e.g., intra-word microspacing) on a text pass, or for adjusting the vertical position of redline printed on a text pass.

Auto Redline On

Enter a command string that turns on the redline feature.

Auto Redline Off

Enter a command string that turns off the redline feature.

Character to Use for Movement

Enter the value of a WordPerfect character to use for the horizontal movement. The character will usually be a space (e.g., 32 or ' ').

The value is calculated by multiplying the character set number by 256 and then adding the character number in the set to the result. For example, the complete character set number of a space character is 0,32. By multiplying 256 times 0 and adding 32 to the result (256*0+32), a value of 32 is obtained for the space character.

If the value is left blank, then the regular horizontal movement for the font will be used to move to the OFF position.

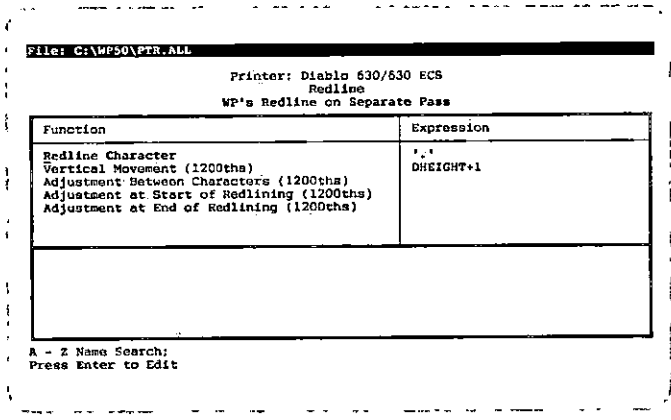
Vertical Adjustment

Enter a value for adjusting the vertical position of the redline up or down. Since fonts of different sizes may need different vertical movements, the value should be entered as a command that takes into account the font size (e.g., PTSIZE/3 for down and -PTSIZE/3 for up).

Because the PTSIZE variable is stored in 3600ths of an inch (a multiple of 72 points), the point size needs to be divided by 3 to obtain a value for vertical movement in 1200ths of an inch.

WP's Redline on Separate Pass

Select this method if the printer has no redline feature, and you want WordPerfect to redline text using a character on a second pass of the printhead. Press **Enter** to display the following menu for entering the information WordPerfect needs to print the redlining.



You may want to underline the redlined text with a period or a tilde, or overprint the text with a graphic shading character.

Redline Character

Enter the value of the WordPerfect character to use for the redlining (e.g., 768 or '▒').

The value is calculated by multiplying the character set number by 256 and then adding the character number in the set to the result. For example, the complete character set number of box shade 1 (▒) is 3,0. By multiplying 256 times 3 and adding 0 to the result (256*3+0), a value of 768 is obtained for box shade 1.

Vertical Movement (1200ths)
Enter a value for moving the vertical position of the redline character up or down. Since fonts of different sizes may need different vertical movements, the value should be entered as a command that takes into account the font size (e.g., PTSIZE/3 for down and -PTSIZE/3 for up).

Because the PTSIZE variable is stored in 3600ths of an inch (a multiple of 72 points), the point size needs to be divided by 3 to obtain a value for vertical movement in 1200ths of an inch.

Adjustment Between Characters (1200ths)
Enter the distance (in 1200ths of an inch) that each redline character should be moved so that redline characters touch to form a continuous line. To find the correct distance, measure the amount of white space between two printed redline characters.

A positive number increases the distance between characters, while a negative number decreases the distance between characters. The value will usually be negative.

Adjustment at Start of Redline (1200ths)
Enter the distance (in 1200ths of an inch) that the redline character should be printed to the right (positive number) or to the left (negative number) so that the first character of text is fully underlined. The distance should be about half the amount of white space between two printed redline characters.

Adjustment at End of Redline (1200ths)
Enter the distance (in 1200ths of an inch) that the redline character should be printed to the right (positive number) or to the left (negative number) so that the last character of text is fully underlined. The distance should be about half the amount of white space between two printed redline characters.

Backspace Redline

Select this method if you want WordPerfect to use the printer's backspace capabilities to redlined text. Press **Enter** to display a menu where the redline character (e.g., 45 or '-' for a dash) can be entered.

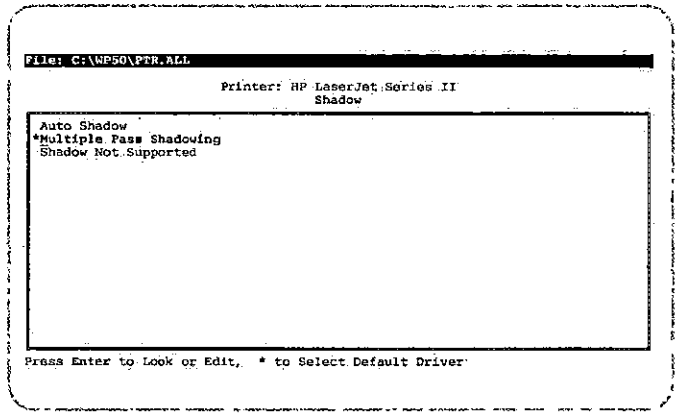
This method is designed for printers with very limited capabilities, and should only be used if no other alternative for redlining is possible.

Redline Not Supported

Mark this item if the printer has no capability for printing redlined text.

Shadow

When you select Shadow from the Printer menu, a menu is displayed that lists two methods for printing shadowed text when no shadow font has been defined for an automatic font change (AFC). Shadowed characters look three dimensional because of gray or black shadows cast in one or two directions around the character.



Select a method and enter the appropriate information. The method you select will be determined by the capabilities of your printer.

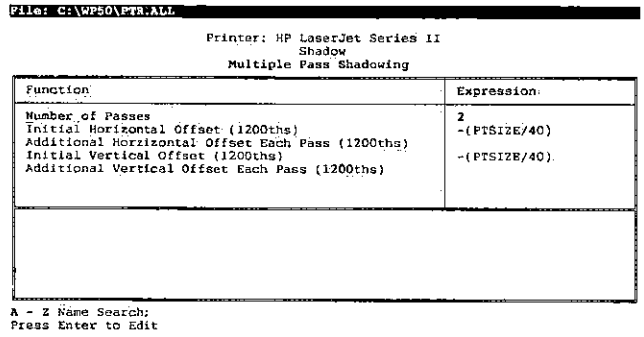
When defining printers at WordPerfect Corporation, the printer's built-in shadow feature is the first choice for shadowed text, followed by setting up multiple pass shadowing with horizontal and vertical offsets.

Auto Shadow

Select this method if the printer has a shadow feature that automatically prints shadowed text in one printhead pass without changing the current font. Press **Enter** to display a menu where commands can be entered to turn the automatic shadow feature on and off.

Multiple Pass Shadowing

Select this method if you want WordPerfect to create shadowed text by printing each character an indicated number of times with a horizontal and vertical offset on each pass of the printhead. Press **Enter** to display the following menu for entering the information WordPerfect needs to print the shadowing.



Number of Passes

Enter the number of passes (original + overstrikes) the printer should make to print the shadowed text. Because a minimum value of 2 is needed for the overstrike, enter a value of 0 or 1 is treated the same as the 2 value.

Initial Horizontal Offset (1200ths)

Enter the horizontal distance (in 1200ths of an inch) between the first pair of images (passes 1 and 2). A negative value moves the second pass to the left; a positive value moves the second pass to the right.

Additional Horizontal Offset Each Pass (1200ths)

Enter the horizontal distance (in 1200ths of an inch) between each pair of overstrike images after passes 1 and 2 (e.g., passes 2 and 3, 3 and 4, etc.). Enter a negative value to move to the left, and a positive value to move to the right.

Initial Vertical Offset (1200ths)

Enter the vertical distance (in 1200ths of an inch) between the first pair of images (passes 1 and 2). A negative value moves the second pass up, and a positive value moves the second pass down.

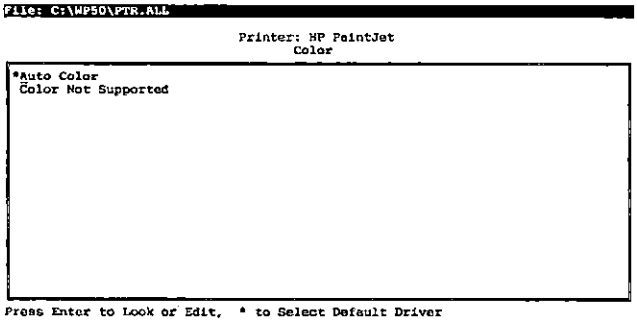
Additional Vertical Offset Each Pass (1200ths)
Enter the vertical distance (in 1200ths of an inch) between each pair of overstrike images after passes 1 and 2 (e.g., passes 2 and 3, 3 and 4, etc.). Enter a negative value to move up, and a positive value to move down.

Shadow Not Supported

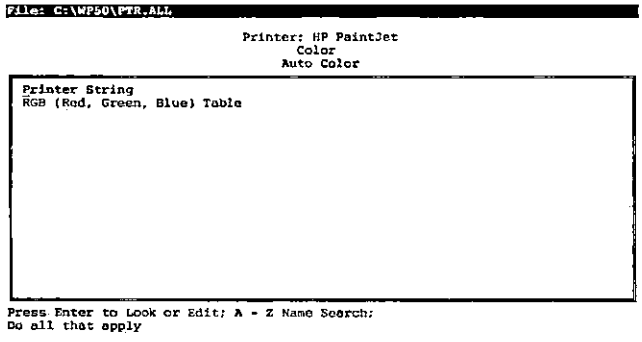
Mark this item if the printer has no capability for printing shadowed text.

Color

When you select Color from the Printer menu, the following menu is displayed.



For WordPerfect to support color printing, mark Auto Color with an asterisk (*), and then press **Enter** to display the following menu from which you can enter the appropriate commands for printing text in color.



After selecting an option and entering the appropriate information, press **Exit** (F7) to return to the Auto Color menu, and then press **Exit** again to return to the Color menu.

Only text colors are currently supported. Graphics can be previewed but not printed in color in WordPerfect. If the printer has no capability for printing text in colors, mark Color Not Supported on the first Color menu.

Printer String

Enter a command string that includes the commands needed to print the text in the correct color. Because WordPerfect sets the COLOR variable to the appropriate ID from the RGB table (see below) at every color change in the document, the COLOR variable should be included as part of the command string.

For example, the **IF(COLOR==1) [27] "**" ELSEIF(COLOR==2) "***" . . . ENDIF** command states that if the color ID number is 1, send two asterisks to the printer, or if the color ID number is 2, send three asterisks to the printer, etc. The asterisks represent the string the printer needs to switch to the appropriate color.

For some printers, you may not need to set up an RGB table of colors if red, green, and blue can be sent as individual values to the printer. For example, the
[27]"*"ASCII(RED)""ASCII(GREEN)"***"ASCII (BLUE)**
command sends an asterisk, the ASCII value of red, two asterisks, the ASCII value of green, three asterisks and the ASCII value of blue.

The asterisks represent strings that can be sent to the printer to select a color (red, green, or blue). The values of the RED, GREEN, and BLUE variables are the percentages listed with the requested color in the document, and are sent to the printer with the printer strings to indicate the percentage of red, green, or blue. The printer then uses this information to print the requested color in the document, or a color that is as close as possible to the requested values.

RGB (Red, Green, Blue) Table

After selecting RGB (Red, Green, Blue) Table, a table is displayed that lists the printer's available colors.

File: C:\WP50\PTR.ALL

Printer: HP PaintJet
Color
Auto Color
RGB (Red, Green, Blue) Table

ID Code	Red	Green	Blue	Cyan	Magenta	Yellow
0	0%	0%	0%	100%	100%	100%
1	67%	0%	0%	33%	100%	100%
2	0%	67%	0%	100%	33%	100%
3	67%	67%	0%	33%	33%	100%
4	0%	0%	67%	100%	100%	33%
5	67%	0%	67%	33%	100%	33%
6	0%	67%	67%	100%	33%	33%
7	100%	100%	100%	0%	0%	0%

Maximum value: 255

Ins Add; Del Delete; 0-9 Change;
Press Tab to edit maximum value

Each color is assigned a unique ID number and then defined by the percentages of red, green, and blue and/or cyan, magenta, and yellow that make up the color. Cyan, magenta, and yellow percentages are the complements of red, green, and blue. For example, if you enter 23% for red, then cyan changes to 77%; enter 45% for cyan, and red changes to 55%. The complements always reflect a total of 100%.

At print-time, WordPerfect searches the RGB table for a color ID with percentages that match (as close as possible) the requested color in the document. If an exact match is not found, then WordPerfect searches through the colors for the first color that comes close to matching the requested percentages. The search is done in the order in which the colors were added to the table (unsorted order).

After finding the closest possible match, the ID number in the RGB table for those percentages is then assigned to the COLOR variable, which can be used in the Set Color string to send the correct command to the printer (see Printer String for an example).

Add, Delete, and Change

A new color can be added to the RGB table by pressing **Ins**, placing the cursor on a color to use as a pattern and pressing **Enter** (or **Ctrl-Enter** for a default pattern), and then typing a new ID code and pressing **Enter**. The colors are sorted in numeric order by the ID codes. If the RGB table is empty, pressing **Ins** simply inserts a default pattern.

A color can be deleted from the RGB table by placing the cursor on the color, pressing **Del**, and then typing **y**.

An ID code or percentage can be changed by moving the cursor to the ID code or percentage, typing the new number, and then pressing **Enter**.

ID Code

Enter the ID code number used by the printer to identify the color. At print-time, WordPerfect sets the COLOR variable to the listed ID for each color change. The ID number cannot be greater than the maximum value listed at the bottom of the table.

Red, Green, Blue

Enter a percentage of each base color found in the printer color being defined. For example, black is 100% red, 100% green, and 100% blue.

Cyan, Magenta, Yellow

Enter a percentage of each base color found in the printer color being defined. For example, black is 0% cyan, 0% magenta, and 0% yellow.

Maximum Value

Enter the maximum value the printer uses to define a base color by pressing **Tab** to move the maximum value, pressing **Enter** to edit the value, and then entering the value. Press **Tab** again to return to the colors in the RGB table.

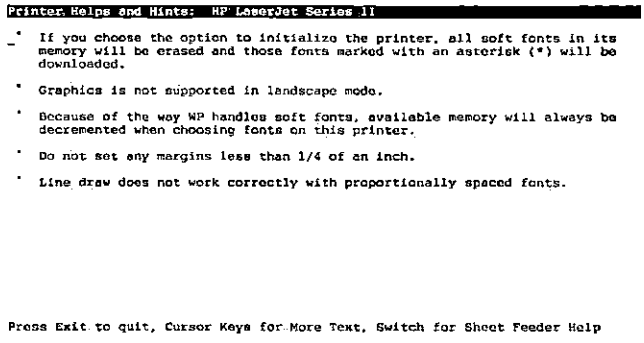
If the RED, GREEN, and BLUE variables are used in the Set Color string (or other strings) to set the new color, the maximum value is used. Otherwise, the maximum setting will not matter.

At print-time, WordPerfect sets the RED, GREEN, and BLUE variables to the new color's red, green, and blue percentages multiplied by the maximum value. For example, if the RGB maximum value is 255, then for a color made up of 67% red, 0% green, and 33% blue, RED would equal 171, GREEN would equal 0, and BLUE would equal 84. The total values of 171+0+84 equal the maximum value of 255.

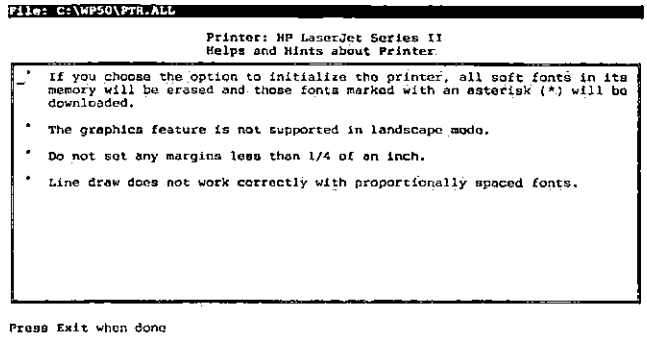
Helps and Hints about Printer

When you first select a printer in WordPerfect, a help screen of important information about the printer is displayed while the fonts are updated. The same help screen can also be displayed from the Select Printer menu at any time by selecting Help (6).

For example, the following help screen is displayed for the HP LaserJet Series II printer.


Printer Helps and Hints: HP LaserJet Series II
If you choose the option to initialize the printer, all soft fonts in its memory will be erased and those fonts marked with an asterisk (*) will be downloaded.
Graphics is not supported in landscape mode.
Because of the way WP handles soft fonts, available memory will always be decremented when choosing fonts on this printer.
Do not set any margins less than 1/4 of an inch.
Line draw does not work correctly with proportionally spaced fonts.
Press Exit to quit, Cursor Keys for More Text, Switch for Sheet Feeder Help

The printer help screen can be edited (or an entirely new screen created) by selecting Helps and Hints About Printer from the Printer menu. An editing window similar to the following is displayed.


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Helps and Hints about Printer
If you choose the option to initialize the printer, all soft fonts in its memory will be erased and those fonts marked with an asterisk (*) will be downloaded.
The graphics feature is not supported in landscape mode.
Do not set any margins less than 1/4 of an inch.
Line draw does not work correctly with proportionally spaced fonts.
Press Exit when done

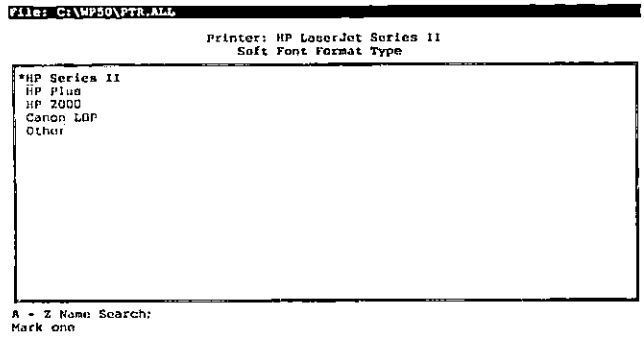
While in the editing window, the basic WordPerfect editing features can be used, and text can be emphasized with **Bold** (F6) or **Underline** (F8). Tabs are not allowed, but **Compose** (Ctrl-2) and **Alt** with the numeric keypad are available for entering any characters that can be displayed in WordPerfect's document editing screen.

Because the help screen is an editing window, information can extend below the editing window. The text below the window can be scrolled on to the screen while viewing the help information in WordPerfect. By using **Text In/Out** (Ctrl-F5), you can save and retrieve the help information in the window as a text file for editing in WordPerfect.

When you finish editing the help information, press **Exit** (F7) to save the changes and return to the Printer menu.

Soft Font Format Type

When you select Soft Font Format Type, a list of several soft font types is displayed.



By marking a type, you help WordPerfect identify the downloadable font format supported by your printer. If the appropriate type is not listed, simply mark Other.

The types are used by third party programs (such as Bitstream) to create the correct type of soft font for WordPerfect.

HP Series II

Mark the HP Series II type if the format for soft fonts is compatible with the HP LaserJet Series II printer. These printers can print more and larger characters than the HP Plus printers.

HP Plus

Mark the HP Plus type if the format for soft fonts is compatible with the HP LaserJet Plus printer. These printers are more restricted in characters supported and maximum character size than the HP Series II printers.

HP 2000

Mark the HP 2000 type if the format for soft fonts is compatible with the HP 2000 printer.

Canon LBP

Mark the Canon LBP type if the format for soft fonts is compatible with the Canon LBP printer.

Other

Mark the Other type if the printer does not support soft fonts, or if the format is not described by any other type listed here.

Variables

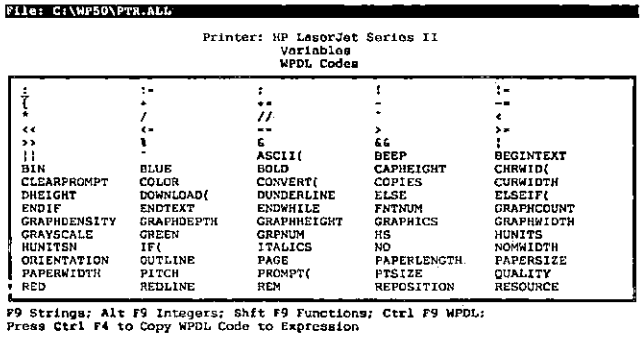
A variable is a command that represents a certain value or expression. The variable can be used in command string to help WordPerfect evaluate a situation or send strings to the printer during a print job.

Built-in Variables

There are over 50 variables already available as part of the WPDL (WordPerfect Description Language) in the Printer program. These "built-in" variables have a value assigned to them at print-time. The value normally comes from information listed in the PRS or ALL file, or from information listed in the WordPerfect document.

For example, the RESOURCE variable is assigned an ID from the resource table for the resource being used at print-time, while the PAPERLENGTH variable is assigned the page length (non-inserted edge) value of the WordPerfect document at print-time. The values for the variables change during a print job, depending on the current status of the document and printer.

A list of WPDL commands that includes the built-in variables can be displayed by selecting Variables from the Printer menu, and then pressing **Built-In Variables** (Ctrl-F9).


File: C:\WP50\PTR.ALL
Printer: HP LaserJet Series II
Variables
WPDL Codes
: :- ; ! !=
{ + ++ - --
* / // ~ <
<< <= == > >=
>> \ & && |
|| ~ ASCII(BEEP BEGINTEXT
BIN BLUE BOLD CAPHEIGHT CHRWID(
CLEARPROMPT COLOR CONVERT(COPIES CURWIDTH
DHEIGHT DOWNLOAD(DUNDERLINE ELSE ELSEIF(
ENDIF ENDTEXT ENDWHILE FNTNUM GRAPHCOUNT
GRAPHDENSITY GRAPHDEPTH GRAPHHEIGHT GRAPHICS GRAPHWIDTH
GRAYSCALE GREEN GRPNUM HS HUNITS
HUNITSN IF(ITALICS NO NOMWIDTH
ORIENTATION OUTLINE PAGE PAPERLENGTH PAPERSIZE
PAPERWIDTH PITCH PROMPT(PTSIZE QUALITY
RED REDLINE REM REPOSITION RESOURCE
F9 Strings; Alt F9 Integers; Shft F9 Functions; Ctrl F9 WPDL;
Press Ctrl F4 to Copy WPDL Code to Expression

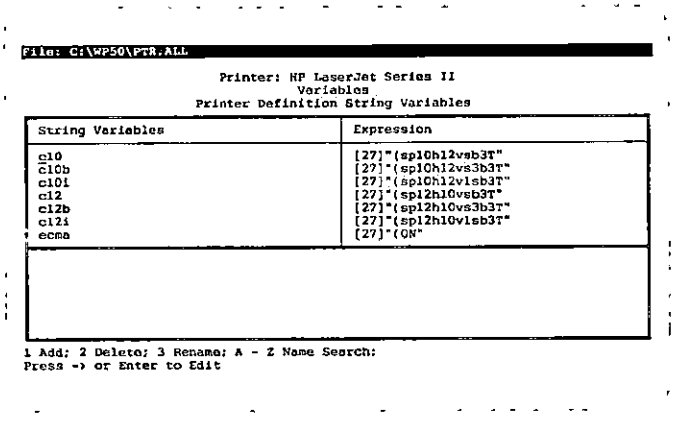
A variable (or any WPDL command) in the list can be copied to the string you are creating by placing the cursor on the variable and pressing **Ctrl-F4**. If you are simply viewing the list of variables, press **Exit** (F7) to return to the string you are creating.

The built-in variables are divided into general, job, form, orientation, graphics, color, attribute, and font categories, and are described below.

String, Function, and Integer Variables

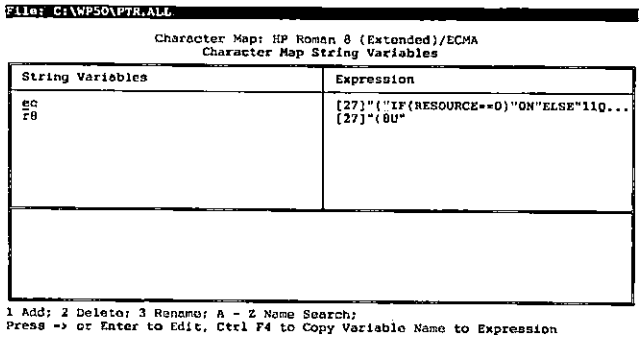
Besides the built-in variables available in the WPDL, you can create your own variables for use in command strings. These commands can be stored as string variables, function variables, or integer variables in three different tables. In addition, there are two sets of tables: one set for printer definitions and the other set for character maps.

For example, when you select Variables from the Printer menu, a table of the string variables is displayed.



Tables for the function and integer tables can be displayed at this point by pressing **Function Variables** (Shift-F9) or **Integer Variables** (Alt-F9). By continuing to press any of the variable keys, you can move through the tables to edit or view the lists of variables. When you finish, press **Exit** (F7) to return to the Printer menu.

Three similar tables for the character map variables can be displayed by selecting a character map, and then pressing one of the variable keys. For example, the string variables for the character maps can be displayed by pressing **String Variables** (F9) with the cursor on a character in the map.


File: C:\WP50\PTR.ALL
Character Map: HP Roman 8 (Extended)/ECMA
Character Map String Variables
String Variables
Expression
ec
[27]"("IF(RESOURCE==0)"ON"ELSE"11Q...
f8
[27]"(8U"
1 Add; 2 Delete; 3 Rename; A - Z Name Search;
Press -> or Enter to Edit, Ctrl F4 to Copy Variable Name to Expression

As with the variable tables for the printer definitions, you can display all the variable tables for the character maps by pressing any of the variable keys (F9, Shift-F9, Alt-F9, or Ctrl-F9). When you finish, press **Exit** (F7) to return to the character map.

String variables are those that normally include a string (such as a font select string) that is sent directly to the printer (e.g., [27]"(sp10h12vsb3T"). Function variables calculate a value which then becomes the value of the variable (e.g., "abc:=plen" where "plen" is a function variable such as PAPERLENGTH//600). Integer strings are simply assigned a numeric value such as 0.

When copying a printer definition or character table to another file, all the variables used in the definition or table are copied with the command strings.

Add, Delete, Rename, and Edit

While in a table of variables, you can edit the list by adding, deleting, or renaming variables.

Add

A new variable can be added to the list by selecting Add (1), placing the cursor on an existing variable to use as a pattern and pressing **Enter** (or **Ctrl-Enter** for a default variable), and then entering a name for the variable. If the variable table is empty, the default variable is automatically selected as a pattern.

Delete

A variable can be deleted by placing the cursor on the name of the variable, selecting Delete (2), and then typing **y** to delete the variable from the table.

Rename

A variable can be renamed by placing the cursor on the name of the variable, selecting Rename (3), and then entering the new name.

Edit

A variable can be edited by placing the cursor on the variable, pressing **Right Arrow** or **Enter** to move to the string, and then making any necessary editing changes. For string and function variables, you can press **Ctrl-Enter** to display the variable in an editing window for more convenient editing. When you finish, press **Exit** (F7) to save the changes or press **Cancel** (F1) to restore the string to its original status.

Entering a Variable into an Expression

The variables can be displayed at any time while editing a printer command string by pressing any of the variable keys (F9, Shift-F9, Alt-F9, and Ctrl-F9). Once the table is displayed, you can enter a variable into the command string (expression) by placing the cursor on a variable and pressing **Ctrl-Enter**. The command is inserted, and you are returned to the string you were editing.

While variables can be entered in uppercase or lowercase letters, the Printer program displays built-in variables in uppercase letters and user-defined variables in lowercase letters.

General Variables

The general variables can be used in any command string for evaluation purposes.

NO

Returns the logical false value of 0.

YES

Returns the logical true value of 1.

REM

Returns the remainder of the last divide (/) or divide-and-round (//) operation. The REM variable is not set by the modulo operation (%).

Job Variables

The values for the job variables are assigned at the beginning of each new print job.

COPIES

The number of copies being printed. The COPIES variable is useful in the Auto Multiple Copies string (e.g., **[27] "&l" ASCII(COPIES) "X"** for the HP LaserJet Series II).

Although the COPIES variable is set up, the Auto Multiple Copies string is not currently implemented in WordPerfect.

QUALITY

The print quality selected for the print job (0=draft, 1=medium, and 2=high).

PAGE

The physical page number in the current print job. The page number is updated at the beginning of each new page.

GRAYSCALE

The darkness of the current rule or shaded box being printed (0-100% of black). The GRAYSCALE variable is useful in printing multiple intensity shaded boxes.

Form Variables

The values for the job variables are reset at each form change during a print job.

BIN

The number of the sheet feeder bin currently in use.

PAPERSIZE

The ID code for the paper type (0=other, 1=blank, 2=bond, 3=letterhead, 4=envelope, 5=label, 6=transparency, 7=cardstock).

PAPERLENGTH

The physical length of the non-inserted edge of the page in 1200ths of an inch. In commands strings that need a value at 6 lpi (lines per inch), the PAPERLENGTH variable should be divided by 200 (e.g., **[27] "&l" ASCII(PAPERLENGTH/200) "P"** for the HP LaserJet Series II).

PAPERWIDTH
The physical length of the inserted edge of the page in 1200ths of an inch.

Orientation Variable

The value for the ORIENTATION variable is reset at each orientation change during a print job.

ORIENTATION
The current font orientation (0=portrait, 1=landscape, 2=reverse portrait, 3=reverse landscape). The ORIENTATION variable is useful in printer strings that select the font (e.g., **[27] "&l" IF (ORIENTATION==1) "1" ENDIF "O"** for the HP LaserJet Series II).

When the Set Paper Length string (in the Initialize and Reset menu) is sent to printer, the ORIENTATION variable is set for the next page, so it may not contain the current page's orientation.

If you need the current page's orientation when setting the paper length for the next page, a user-defined variable (rather than ORIENTATION) should be used. The user-defined variable should be set to the value of ORIENTATION as part of the Change Orientation string.

Graphics Variables

The values for the Graphics variables are reset for each graphics figure during a print job.

GRAPHICS
A flag specifying that graphics are being printed (0=false, 1=true).

GRAPHDENSITY
The byte specifying the current figure's graphics density from the printer's Graphics Resolution table.

GRAPHCOUNT
The number of graphic data bytes being used for the current figure (raster graphics only).

XRESOLUTION
The horizontal resolution of the current figure in dots per inch. The RESOLUTION variable can be used in command strings to transfer graphics.

YRESOLUTION
The vertical resolution of the current figure in dots per inch. The RESOLUTION variable can be used in command strings to transfer graphics.

GRAPHWIDTH
The width of the current graphics figure in XRESOLUTION units.

GRAPHHEIGHT
The height of the current graphics figure in YRESOLUTION units.

GRAPHDEPTH
Not yet available.

Color Variables

The values for the Color variables are reset at each color change during a print job. The values are determined by information in the printer's RGB (red-green-blue) table.

COLOR
The current color ID number from the printer's RGB table.

RED
The current red value of a color (0 to the RGB table maximum value).

GREEN
The current green value of a color (0 to the RGB table maximum value).

BLUE
The current blue value of a color (0 to the RGB table maximum value).

Attribute Variables

The values for the Attribute variables are reset at each attribute change during a print job. Flags (0=false, 1=on) are set that specify which attributes are currently using a method listed on the Printer menu for handling bold, underline, etc., instead of an automatic font change (AFC).

The following is a list of the attribute variables:

BOLD
DOUBLE UNDERLINE
ITALICS
REDLINE
SHADOW
STRIKEOUT
UNDERLINE

To learn about current attributes caused by manual and automatic font changes, WPDL strings should test font (not attribute) variables.

For example, if a printer uses an automatic font change to print italics rather than using the italics driver type, WPDL strings should test the value of SLANT (not ITALICS) to determine whether italic text is being printed.

Font Variables

The values for the Font variables are set at each font change during a print job.

RESOURCE
The ID number (from the printer's resource table) of the resource being used for printing in the current font.

FNTNUM
A unique font ID (0 to the maximum number of fonts in the PRS file). The FNTNUM variable is useful in a font selection string.

GRPNUM
A unique font group ID (0 to the maximum number of groups in the PRS file). The GRPNUM variable is useful in a group selection string.

SLANT
The signed value specifying distance the top of a capital letter is moved from an upright position (in 1200ths of an inch).

WEIGHT
The font stroke weight (0=extra light, 1=light, 2=normal, 3=bold, 4=extra bold).

PTSIZE
The font point size in 3600ths of an inch. The 3600ths measurement is used because it is a multiple of 72 (72 points = 1 inch).

CAPHEIGHT
The height of capital letters in the current font from the baseline to the top of the letters in 1200ths of an inch.

XHEIGHT
The height of lowercase letters (based on the letter "x") in the current font in 1200ths of an inch.

DHEIGHT
The height of the descender tails (gjpqy) in the current font from the baseline to the bottom of the letters in 1200ths of an inch.

NOMWIDTH
The nominal (average) width of the characters in the current font in 1200ths of inch.

PITCH
The average printing width (in WUNITS) of the characters (including letter spacing adjustments) in the current font. The PITCH variable value may differ from the NOMWIDTH variable value when the font is being expanded or compressed for printing.

HUNITS
The horizontal motion units (denominator) in units per inch.

HUNITSN
The horizontal motion units (numerator). In other words, HUNITSN/HUNITS = the fractional units of motion in inches.

HS
The current horizontal spacing amount in HUNITS. The HS variable is useful for the Set HMI or Relative Horizontal Microspace command strings (e.g., **[27] "*p" ASCII(HS) "X"** for the HP LaserJet Series II).

WUNITS
The character width units in units per inch. The WUNITS value is usually the same as the HUNITS value. However, the original HP LaserJet is an example of a printer where WUNITS and HUNITS differ.

VUNITS
The vertical motion units (denominator) in units per inch.

VUNITSN
The vertical motion units (numerator). In other words, VUNITSN/VUNITS = the fractional units of motion in inches.

VS
The current vertical spacing amount in VUNITS. The VS variable is useful for the Set VMI or Relative Vertical Spacing command strings (e.g., **[27] "*p" ASCII(VS) "Y"** for the HP LaserJet Series II).

Character Variables

The values for the Character variables are reset for each character during a print job.

CURWIDTH
The current character width in WUNITS. The CURWIDTH variable is useful in character map strings. The average width of all characters in a font is assigned to the NOMWIDTH variable.

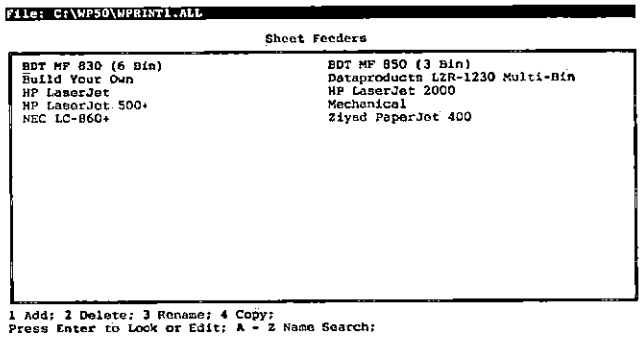
XPOS
The current horizontal position in HUNITS. The XPOS variable is useful in Absolute Horizontal Position command strings.

YPOS
The current vertical position in VUNITS. The YPOS variable is useful in Absolute Vertical Position command strings.

Sheet Feeder Definitions

A sheet feeder is a collection of bins attached to the printer that automatically feed paper into the printer a sheet at a time.

At any time while in the Printer program, you can display a list of all the sheet feeder definitions in the file by pressing **Sheet Feeder Definitions** (Shift-F8).



After editing the sheet feeder information, you can return to the Printers menu by pressing **Printer Definitions** (F8), save the printer file by pressing **Save** (F10), retrieve another file by pressing **Retrieve** (Shift-F10), or exit and/or clear the Printer program by pressing **Exit** (F7).

Add, Delete, Rename, and Copy

Options at the bottom of the Sheet Feeder menu let you add, delete, rename, and copy sheet feeder definitions.

Add

A new sheet feeder can be added to the list by selecting Add (1), placing the cursor on a sheet feeder definition to use as a pattern and pressing **Enter** (or **Ctrl-Enter** for a default definition), and then entering a name for the sheet feeder. If the sheet feeder list is empty, the default definition is automatically selected as a pattern.

Delete

A sheet feeder can be deleted by placing the cursor on the name of the sheet feeder definition, selecting Delete (2), and then typing **y** to delete the definition from the printer file.

Rename

A sheet feeder can be renamed by placing the cursor on the name of the sheet feeder definition, selecting Rename (3), and then entering the new name.

Copy

Copy lets you add a listed sheet feeder definition to another PRS or ALL file.

After selecting Copy (4), enter the name of the PRS or ALL file to which you want the sheet feeder definition copied. The sheet feeder is appended to the destination file or replaces any definition in the destination file listed under the same name.

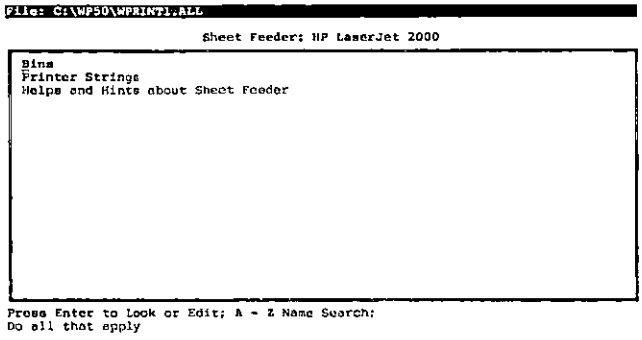
A new file can be created for the sheet feeder definition by selecting Copy (4) and entering a new filename. The file is created, and the definition is copied to it.

If you want to copy more than one sheet feeder definition at a time, mark (with an asterisk) the name of each sheet feeder to be copied before selecting Copy. You can mark (or unmark) all the sheet feeder names in the list by pressing **Mark** (Alt-F5).

When entering a filename, you can include a complete path.

Sheet Feeder Menu

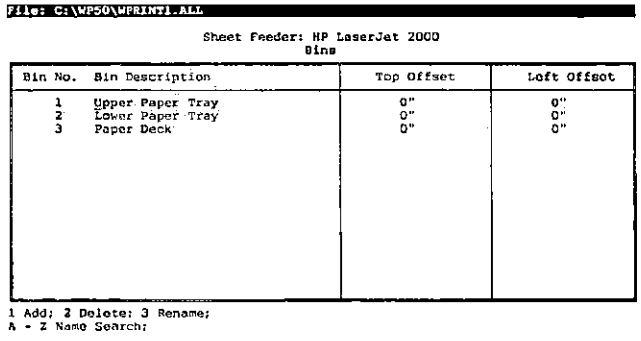
When you select a sheet feeder from the Sheet Feeders menu, a list of menus is displayed that lets you edit the sheet feeder definition information.


File: C:\WP50\WPRINT.ALL
Sheet Feeder: HP LaserJet 2000
Bins
Printer Strings
Helps and Hints about Sheet Feeder
Press Enter to Look or Edit; A - Z Name Search;
Do all that apply

Press **Enter** to select a menu in the list, and then enter the appropriate information. When you finish, press **Exit** (F7) to return to the list of menus, and then press **Exit** again to return to the Sheet Feeders menu.

Bins

Select Bins to display a list of all the currently defined bins for the sheet feeder. A bin is a device that feeds paper into a printer.


File: C:\WP50\WPRINT.ALL
Sheet Feeder: HP LaserJet 2000
Bins
Bin No. Bin Description
Top Offset
Left Offset
1 Upper Paper Tray 0" 0"
2 Lower Paper Tray 0" 0"
3 Paper Deck 0" 0"
1 Add; 2 Delete; 3 Rename;
A - Z Name Search;

The bin number is a consecutive number (starting at 1) automatically assigned to each bin added to the list, and is used to identify the bin in the Printer program and in WordPerfect. The numbers are updated as you add or delete bins to the list.

The bin description is entered when you add or rename a bin, and should describe the location, number, etc., of the bin (not currently used by WordPerfect).

Once a bin has been added to the list, you can set a top and left offset to adjust the distance (in inches) between the top and left edges of the page and the "0" printing position for WordPerfect. A negative number adjusts to the right or down, while a positive number adjusts to the left or up.

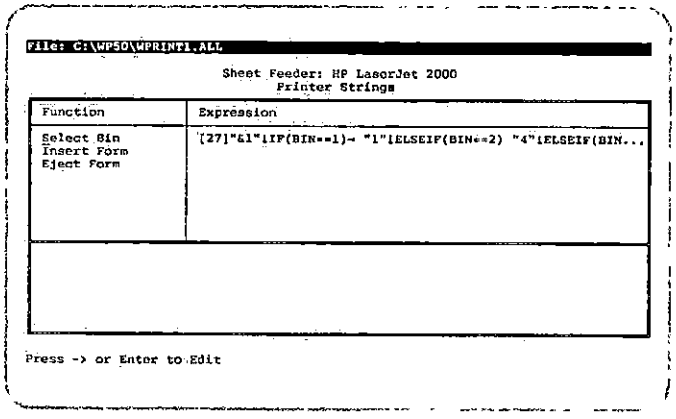
For example, entering .5" for a top offset adjusts the page an extra half inch (in addition to the document's top margin) to make sure that the requested top margin in WordPerfect is accurate.

The menu at the bottom of the list lets you add, delete, or rename a bin. When adding a bin, select Add (1), place the cursor on a bin to use as a pattern and press **Enter** (or **Ctrl-Enter** for a default bin), and then enter a name of the bin (the number is assigned automatically).

You can delete or rename a bin by placing the cursor on the bin, selecting Delete (2) or Rename (3), and then typing **y** to delete the bin or entering a new name.

Printer Strings

Select Printer Strings to display a menu of commands for controlling sheet feeder bin selection and page management.



For some printers, a command to select a bin is only needed at the beginning of a print job, and any time during the print job that the bin number changes. For other printers, a select bin command needs to be sent at the beginning of each page.

When the command only needs to be sent at the beginning of the print job, enter the command in Select Bin. When the command needs to be sent at the beginning of each page, enter the command in Insert Form. Enter the select bin command in *both* places can cause an extra sheet of paper to be ejected from the bin after each printed page.

When you finish entering the appropriate command(s), press **Exit** (F7) to return to the Sheet Feeder menu.

Select Bin
Enter the command string needed to select the sheet feeder bin. The command string should include the BIN variable, which stores the bin number requested in the document.

The command is sent at the beginning of the print job, and every time a bin change is requested in the document. At the end of the print job, the BIN variable is reset to 1, and the command string sent on last time to the printer to set the bin back to bin 1.

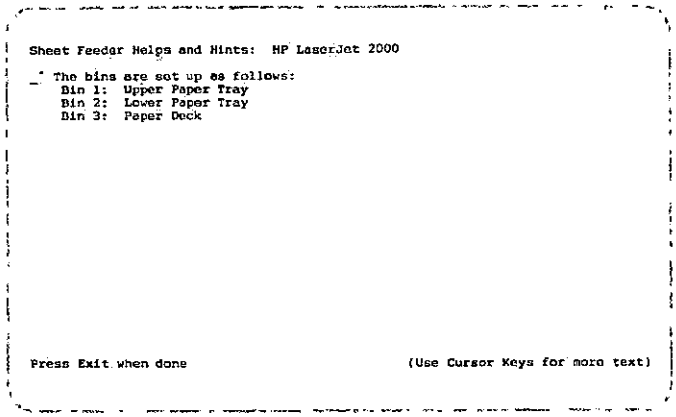
Insert Form
Enter the command string needed to select the sheet feeder bin. The command string should include the BIN variable, which stores the bin number requested in the document. The command is sent at the beginning of each page.

Eject Form
Enter the command string needed to eject the form from the sheet feeder bin. The command is sent at the end of each page. The eject command may not be needed for some printers.

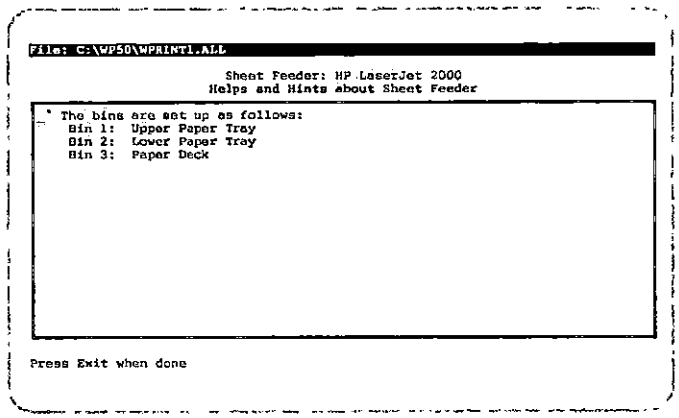
Helps and Hints about Sheet Feeder

When you first select a sheet feeder in WordPerfect, a help screen of important information about the sheet feeder is displayed. The same help screen can also be displayed from the Sheet Feeder menu at any time by selecting Help (6).

For example, the following help screen is displayed for the HP LaerJet 2000 sheet feeder.


Sheet Feedar Helps and Hints: HP LaserJet 2000
The bins are set up as follows:
Bin 1: Upper Paper Tray
Bin 2: Lower Paper Tray
Bin 3: Paper Deck
Press Exit when done
(Use Cursor Keys for more text)

The sheet feeder help screen can be edited (or an entirely new screen created) by selecting Helps and Hints About Sheet Feeder to display an editing window similar to the following.


File: C:\WP50\WPRINTL.ALL
Sheet Feeder: HP LaserJet 2000
Helps and Hints about Sheet Feeder
The bins are set up as follows:
Bin 1: Upper Paper Tray
Bin 2: Lower Paper Tray
Bin 3: Paper Deck
Press Exit when done

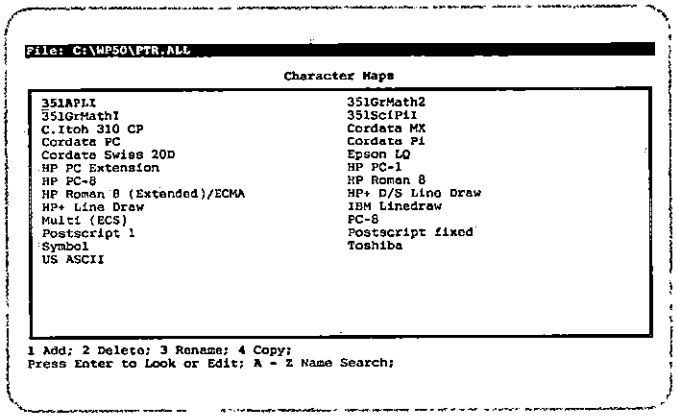
While in the editing window, the basic WordPerfect editing features can be used, and text can be emphasized with **Bold** (F6) or **Underline** (F8). Tabs are not allowed, but **Compose** (Ctrl-2) and **Alt** with the numeric key pad can be used to enter any characters that can be displayed in WordPerfect's document editing screen.

Because the help screen is an editing window, information can extend below the window. The text below the window can be scrolled on to the screen while viewing the help information in WordPerfect. By using **Text In/Out** (Ctrl-F5), you can save and retrieve the help information in the window as a text file for editing in WordPerfect.

When you finish editing the help information, press **Exit** (F7) to save the changes and return to the Sheet Feeder menu.

Character Maps

A character map is a table that lists the command required by the printer to print a character. At any time while in the Printer program, you can display a list of all the character maps in the file by pressing **Character Maps** (F4).



After editing the character map information, you can return to the Printers menu by pressing **Printer Definitions** (F8), save the printer file by pressing **Save** (F10), retrieve another file by pressing **Retrieve** (Shift-F10), or exit and/or clear the Printer program by pressing **Exit** (F7).

A character needs to be defined in both the character map and PS table (if any) assigned to the font, or WordPerfect will not print or preview the character.

Add, Delete, Rename, and Copy

Options at the bottom of the Typefaces menu let you add, delete, rename, and copy typefaces in the list.

Add

A new typeface can be added to the list by selecting Add (1), placing the cursor on a typeface to use as a pattern and pressing **Enter** (or **Ctrl-Enter** for an undefined, default typeface), and then entering a name for the typeface. If the typeface list is empty, the default definition is automatically selected as a pattern.

When entering a name for a typeface definition, the family name of the font should be typed first, followed by the style of the font in parentheses. For example, the "Helvetica Bold Oblique" type face should be entered as ***Helvetica (Bold Oblique)*** *for the typeface name.*

Delete

A typeface can be deleted by placing the cursor on the name of the typeface, selecting Delete (2), and then typing **y** to delete the typeface from the printer file.

Rename

A typeface can be renamed by placing the cursor on the name of the typeface, selecting Rename (3), and then entering the new name.

Copy

Copy lets you add a listed typeface to another PRS or ALL file.

After selecting Copy (4), enter the name of the PRS or ALL file to which you want the typeface copied. The typeface is appended to the destination file or replaces any typeface in the destination file listed under the same name.

Create a new file for the typeface by selecting Copy (4) and entering a new filename. The file is created, and the typeface is copied to it.

If you want to copy more than one typeface at a time, mark (with an asterisk) the name of each typeface to be copied before selecting Copy. You can mark (or unmark) all the typefaces in the list by pressing **Mark** (Alt-F5).

When entering a filename, you can include a complete path.

Add (non-shareable)

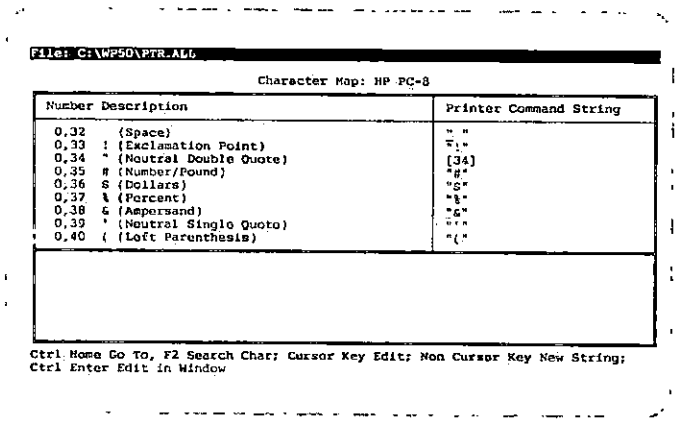
Two sets of variables (string, function, and integer) can be stored in a PRS or ALL file--one set for a printer definition, and one set for a character map. While you can never use character map variables when entering a command string for a printer definition, you *can* use printer definition variables in character map *only* if the character map is defined as non-shareable.

For this reason, an Add (non-shareable) option is added to the character map menu when marking a character map for a font. At that point in the Printer program, you are editing the printer definition, and a new character map added to the list is assigned to that particular printer.

The non-shareable option works exactly like the normal Add option for adding a character map to the list.

Character Map Table

When you select a character map from the Character Maps menu, a table for the character map is displayed.


File: C:\WP50\PTR.ALL
Character Map: HP PC-8
Number Description
Printer Command String
0,32 (Space) " "
0,33 ! (Exclamation Point) "!"
0,34 " (Neutral Double Quote) [34]
0,35 # (Number/Pound) "#"
0,36 $ (Dollars) "$"
0,37 % (Percent) "%"
0,38 & (Ampersand) "&"
0,39 ' (Neutral Single Quote) "'"
0,40 ((Left Parenthesis) "("
Ctrl Home Go To, F2 Search Char; Cursor Key Edit; Non Cursor Key New String;
Ctrl Enter Edit in Window

The table lets you define the characters of a font or family of fonts, and includes all the characters for each WordPerfect character set. Each character that exists in the font should be assigned a command for printing the character. The command may simply be a code or string (e.g., [32] or " "), or may be a command string that actually creates the character.

At print-time, WordPerfect sends the printer command defined for the character to the printer. If the command strings are the same for more than one font, then each font can use the same character map. (See Fonts in the Printers section of Reference for details on selecting a character table.)

A character map needs to be selected for each font so that WordPerfect can actually print characters. If a command does not exist for a character at print-time, WordPerfect checks the AFCs and substitute fonts for a font that has a character table with a command entered for the character. The AFCs and substitute fonts are selected by WordPerfect when the PRS file is created, and can be edited in the Printer program.

After entering the command strings for the characters in the font, press **Exit** (F7) to return to the Character Maps menu.

Number

The first column in the table contains the number of the WordPerfect character (character ID), and includes the character set number followed by a comma and the character number within the set (e.g., 0,126 indicates character set 0, character 126).

You can move the cursor to a particular character in the table by pressing **Go To** (Ctrl-Home), typing a character from the keyboard (ASCII character) or by typing the character ID (e.g., 0,95 for an underscore), and then pressing **Enter**.

Description

The second column in the table includes the name of the character. Uppercase and lowercase words in the names of character set 3 (line draw) represent the side of the character cell (top, right, bottom, left) to which a line extends. Uppercase words indicate double (thick) lines, while lowercase words indicate single (thin) lines.

Printer Command String

Enter a command string that prints the character at the printer.

If you are entering a command string for a PostScript printer, and the command consists of a single character (e.g., "A" or [176]), then the command is sent to the printer as a text character. If the command is more than a single character, then it is sent to the printer as a PostScript command sequence.

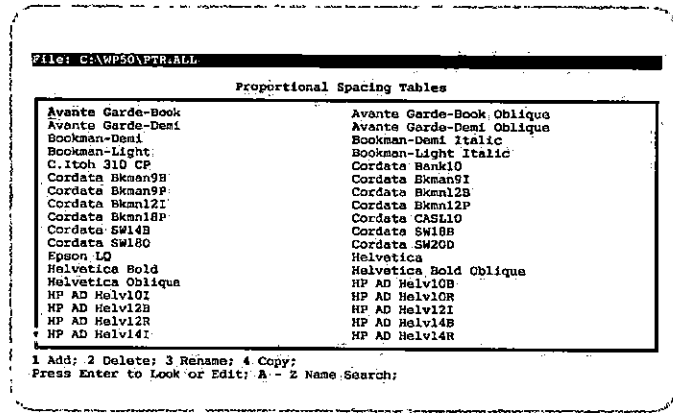
The command sequence is assumed to move the current print position by the amount specified as the width of the character that is mapped to the command sequence.

Proportional Spacing Tables

A proportional spacing (PS) table gives WordPerfect the width of each character in a proportional font or family of fonts. WordPerfect needs the widths to perform right justification, tabulation, repositioning on a second pass, and other horizontal positioning features correctly.

A character needs to be defined in both the character map and PS table (if any) assigned to the font, or WordPerfect will not print the character.

At any time while in the Printer program, you can display the list of proportional spacing tables included in the file by pressing **PS Tables** (F6).



Kerning tables are also accessed from the proportional spacing table. See Kerning Tables below for details.

After editing the proportional spacing (and kerning) information, you return to the Printers menu by pressing **Printer Definitions** (F8), save the printer file by pressing **Save** (F10), retrieve another file by pressing **Retrieve** (Shift-F10), or exit and/or clear the Printer program by pressing **Exit** (F7).

Add, Delete, Rename, and Copy

Options at the bottom of the Proportional Spacing Tables menu let you add, delete, rename, and copy PS tables.

Add

A new PS table can be added to the list by selecting Add (1), placing the cursor on a PS table to use as a pattern and pressing **Enter** (or **Ctrl-Enter** for an empty, default table), and then entering a name for the table. If the PS table list is empty, the default table is automatically selected as a pattern.

Delete

A PS table can be deleted by placing the cursor on the name of the table, selecting Delete (2), and then typing **y** to delete the table from the printer file.

Rename

A PS table can be renamed by placing the cursor on the name of the table, selecting Rename (3), and then entering the new name.

Copy

Copy lets you add a listed PS table to another PRS or ALL file.

After selecting Copy (4), enter the name of the PRS or ALL file to which you want the PS table copied. The table is appended to the destination file or replaces any table in the destination file listed under the same name.

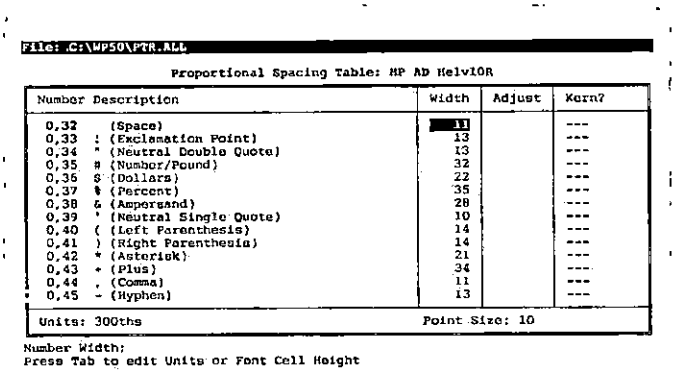
A new file can be created for the PS table by selecting Copy (4) and entering a new filename. The file is created, and the table is copied to it.

If you want to copy more than one PS table at a time, mark (with an asterisk) the name of each table to be copied before selecting Copy. You can mark (or unmark) all the PS table in the list by pressing **Mark** (Alt-F5).

When entering a filename, you can include a complete path.

PS Table

A proportional spacing table can be displayed by selecting the name of a table from the Proportional Spacing Tables menu.



File: C:\WP50\PTR.ALL

Proportional Spacing Table: HP AD HelvlOR

Number	Description	Width	Adjust	Kern?
0,32	(Space)	11		---
0,33	! (Exclamation Point)	13		---
0,34	" (Neutral Double Quote)	13		---
0,35	# (Number/Pound)	32		---
0,36	$ (Dollars)	22		---
0,37	% (Percent)	35		---
0,38	& (Ampersand)	28		---
0,39	' (Neutral Single Quote)	10		---
0,40	((Left Parenthesis)	14		---
0,41	) (Right Parenthesis)	14		---
0,42	* (Asterisk)	21		---
0,43	+ (Plus)	34		---
0,44	, (Comma)	11		---
0,45	- (Hyphen)	13		---

Units: 300ths Point Size: 10

Number Width:
Press Tab to edit Units or Font Cell Height

The table includes all the characters for each WordPerfect character set. A width and horizontal adjustment can be entered for each character in the table. In addition, kerning values can be entered in a separate table to reduce printed space between pairs of characters (see Kerning Table below).

Pressing **Left Arrow** and **Right Arrow** moves the cursor through the Width, Adjust, and Kern columns. Pressing **Tab** moves the cursor to the Units and Point Size at the bottom of the table. These values are used for the proportional spacing information at the bottom of the Size and Spacing Information menu (see Size and Spacing Information under Fonts in the Printer section of Reference).

At print-time, WordPerfect uses the widths, adjust factors, and kerning values to calculate proper horizontal positioning, right justification, and spacing between kerned pairs of characters.

After entering the width information in the table, press **Exit** (F7) to return to the PS Tables menu.

Number

The first column in the table contains the number of the WordPerfect character (character ID), and includes the character set number followed by a comma and the character number within the set (e.g., 0,126 indicates character set 0, character 126).

The cursor can be moved to a particular character in the table by pressing **Go To** (Ctrl-Home), typing a character from the keyboard (ASCII character) or by typing the character ID (e.g., 0,95 for an underscore), and then pressing **Enter**.

Description

The second column in the table includes the name of the character. Uppercase and lowercase words in the names of character set 3 (line draw) represent the side of the character cell (top, right, bottom, left) to which a line extends. Uppercase words indicate double (thick) lines, while lowercase words indicate single (thin) lines.

Width

Enter the width of the character cell based on the units displayed at the bottom of the table. For example, the HP LaserJet Series II printer uses 300 characters per inch (300ths) for measuring character cells. By entering a value of **32**, you are indicating that the character cell for the character is 32/300ths of an inch in width.

Postscript character widths can be obtained from the AFM (Adobe Font Metrics) information for the font. Character widths for standard printers must be obtained from the printer manual, or by measurement.

Adjust

For characters which do not print in the center of the character cell (i.e., some older daisy wheel fonts), you can enter an adjustment value (in printer motion units) to move the character to the left (negative number) or right (positive number) in the cell.

Kern?

A bent arrow ↩ in this column indicates that there are one or more kerning value listed for the character on which the cursor is resting. Pressing **Enter** displays the kerning table (see Kerning Table below for details).

Units

Press **Tab** to move to Units, and then enter the units for the PS table values in units/inch (e.g., 300 = 300ths of an inch). The units are often the same measurement as the printer motion units.
By entering **-1** as the units for a Postscript PS table, a "PostScript Units" message is displayed in the PS table.

Point Size

Press **Tab** to move to Point Size, and then enter the height (in points) of the font for which the PS table is created. The value is the font's point size listed on the Size and Spacing Information menu of the Printer menu.

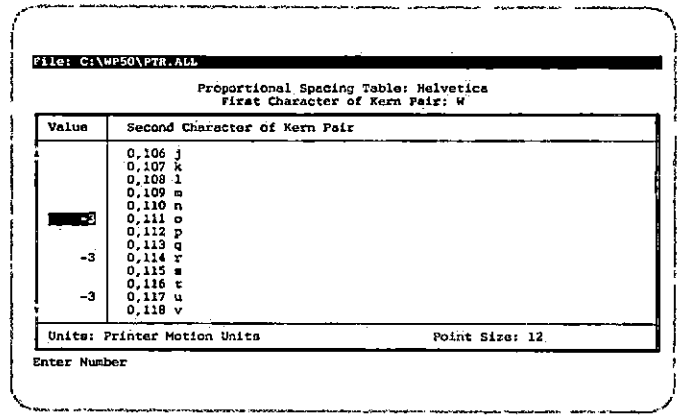
Although a point size is entered for PostScript PS tables, the table can still be used by scalable PostScript fonts. The point size in the table is only used for calculating kerning values.

Fonts with different point sizes for standard printers may be able to use this PS table (see Size and Spacing Information under Fonts in the Printer section of Reference).

Kerning Table

Kerning is the process of adjusting the space between two characters so that the characters print closer together. Kerning is often done to enhance the legibility and design of printed words.

Because the proportional spacing table already lists all the characters for a font, and the width for each character, a third column has been added to let you enter kerning values for each character in the table. The character on which the cursor is resting in the PS table is the first character in the kerning pair. By pressing **Enter** (with the cursor in the Kern column), a kerning table can be displayed that lists all the characters in the WordPerfect character sets can be displayed.

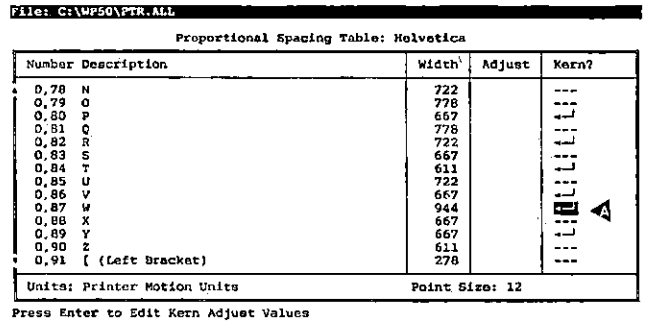


By entering a value for a character in the kerning table, that character is kerned to the first character in the PS table. Because most kerning is done by moving the second character in the pair to the left, a negative value (in printer motion units) should be entered in the kerning table for the value. A positive value moves the second character to the right.

The cursor can be moved to a particular character in the kerning table by pressing **Go To** (Ctrl-Home), typing a character from the keyboard (ASCII character) or by typing the character ID (e.g., 0,95 for an underscore), and then pressing **Enter**.

After entering the kerning values for the second characters, press **Exit** (F7) to return to the PS table.

BENT ARROW

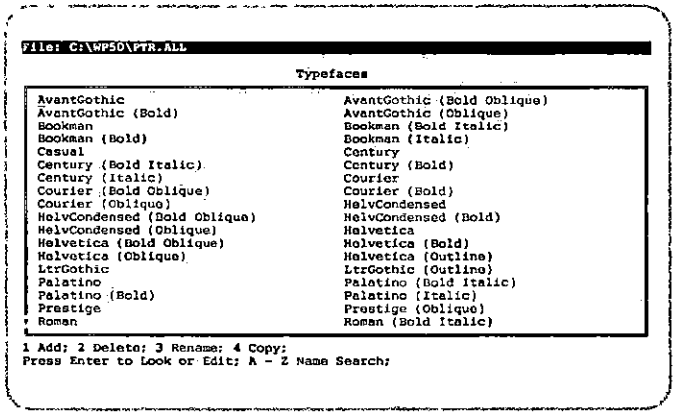


A bent arrow ↩ in the Kern column indicates that one or more kerning values have been entered for the character. Press **Exit** again to return to the Proportional Spacing Tables list.

When the Kern feature is on in a document, WordPerfect uses the kerning values (if any) to print the kerned pairs closer together. This method is often called automatic kerning because the kerning is done each time the characters appear in the document. If you want to kern a pair of characters only *once* in a document, then use the Advance Left feature to close the space between the characters.

Typeface Definitions

A typeface is a description of the general appearance and structure of the characters in a font. At any time while in the Printer program, you can display the list of typefaces included in the file by pressing **Typefaces** (Shift-F6).



The typeface description is created by marking items in several menus that describe such characteristics as appearance, attributes, serifs, and character shapes. WordPerfect uses the typeface information when converting the initial font and base font codes in a document as the document is moved from printer to printer.

For example, a document created using the HP LaserJet Series II may have a [FONT:Helv 30pt Bold (AC)] base font for a major heading. In the PRS file, the Helvetica (Bold) typeface is marked for the Helvetica 30pt Bold font, which describes the font as having a uniform stress with bold weight and a certain capital, descender, lowercase x, lowercase t, and maximum ascender height.

If the document is then printed with the Apple LaserWriter Plus, WordPerfect uses the typeface description to try and find a matching font in the new PRS file. A font with the Helvetica (Bold) typeface is found and the base font code is replaced with a new [Font:*Helvetica Bold 30 pt] code. The asterisk indicates that the font has been converted, and the name of the font (Helvetica Bold 30 pt) indicates the selected font from the new PRS file.

WordPerfect does its best (using the current typeface information) to find a perfect match during a font conversion. However, when that is not possible, the closest possible match is used.

After editing the typeface information, you can return to the Printers menu by pressing **Printer Definitions** (F8), save the printer file by pressing **Save** (F10), retrieve another file by pressing **Retrieve** (Shift-F10), or exit and/or clear the Printer program by pressing **Exit** (F7).

Add, Delete, Rename, and Copy

Options at the bottom of the Typefaces menu let you add, delete, rename, and copy typefaces in the list.

Add

A new typeface can be added to the list by selecting Add (1), placing the cursor on a typeface to use as a pattern and pressing **Enter** (or **Ctrl-Enter** for an undefined, default typeface), and then entering a name for the typeface. If the typeface list is empty, the default definition is automatically selected as a pattern.

Delete

A typeface can be deleted by placing the cursor on the name of the typeface, selecting Delete (2), and then typing **y** to delete the typeface from the printer file.

Rename

A typeface can be renamed by placing the cursor on the name of the typeface, selecting Rename (3), and then entering the new name.

Copy

Copy lets you add a listed typeface to another PRS or ALL file.

After selecting Copy (4), enter the name of the PRS or ALL file to which you want the typeface copied. The typeface is appended to the destination file or replaces any typeface in the destination file listed under the same name.

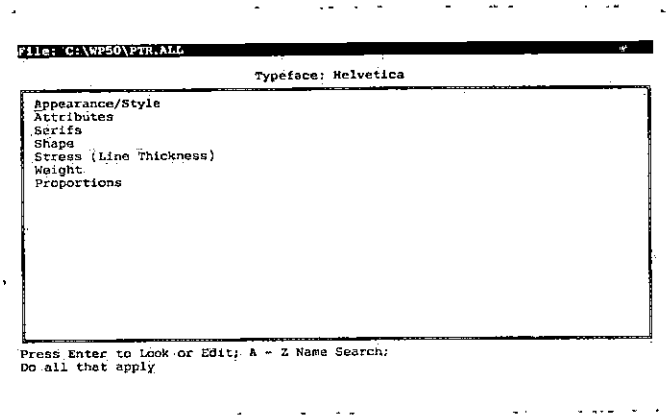
A new file can be created for the typeface by selecting Copy (4) and entering a new filename. The file is created, and the typeface is copied to it.

If you want to copy more than one typeface at a time, mark (with an asterisk) the name of each typeface to be copied before selecting Copy. You can mark (or unmark) all the typefaces in the list by pressing **Mark** (Alt-F5).

When entering a filename, you can include a complete path.

Typeface Menu

When you select a typeface from the Typefaces menu, a list of typeface categories is displayed.

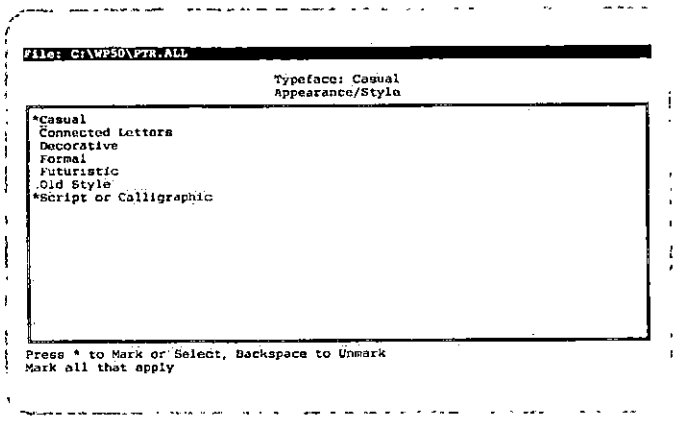


Select a category from the menu, and then mark the characteristic(s) that best describe the typeface. Each printer font must specify one typeface that describes its characters. Style, serifs, shape, and stress should be the same for a typeface family. A typeface family, for example, would be all Helvetica fonts for a printer (i.e., Helvetica, Helvetica Light, Helvetica Bold, Helvetica Italic, etc.).

Not all categories need to be marked for all typefaces. When you finish creating the typeface description, press **Exit** (F7) to return to the Typefaces menu.

Appearance/Style

Select Appearance/Style to display a list of attributes that describe the general appearance, style, or use of the font's characters (e.g., casual, formal, decorative, script).



Mark all those attributes that apply to the typeface.

Casual

Mark this attribute if the typeface is appropriate in casual settings.

Dom Casual
Brody
Flash

Connected Letters

Mark this attribute if the letters are connected to each other like cursive handwriting.

Nellison Casual
Freestyle Script
Murray Hill

Decorative

Mark this attribute if the typeface is purely decorative and would probably be used sparingly to draw attention (i.e., typefaces designed with rainbows, stars and stripes, vines and leaves).

ROMANTIQUES
BROADWAY
MANUSCRIPT

Formal
Mark this attribute if the typeface is appropriate in formal settings (i.e., script or novel typefaces used for wedding invitations and restaurant menus).

Times Roman
Park Avenue
Garamond Light Roman

Futuristic
Mark this attribute if the typeface appears futuristic (i.e., like a computer or LCD display).

SYNCHRO
L.C.D.
Data 70

Old Style
Mark this attribute if the typeface is old fashioned.

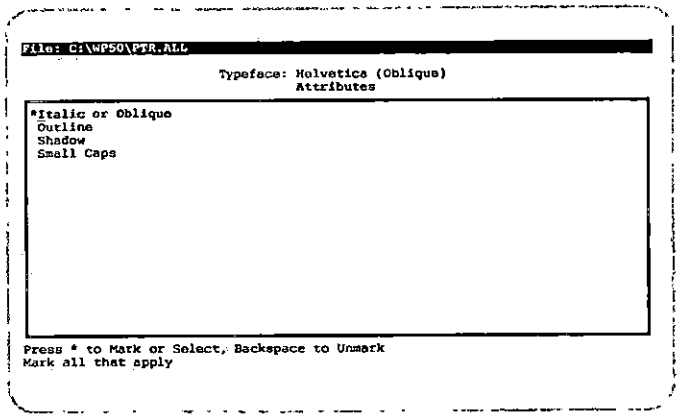
Fraktur
Old English
Agincourt

Script or Calligraphic
Mark this attribute if the typeface is fashioned after characters made with hand brushed strokes. Script typefaces generally have as few strokes as possible and are smooth and flowing (e.g., Commercial Script), whereas calligraphic typefaces have many strokes, often at sharp angles (e.g., Old English).

Cancellaresca Script
Palace Script
Monterey Script

Attributes

Select Attributes to display a list of typeface printing attributes.



Mark the attribute that best describes the characters of the typeface. If the typeface is part of a family, (i.e. Roman, Roman Bold, Roman Italic) make sure all other screens are marked the same except weight or proportions.

Italic or Oblique

Mark this attribute if the characters are italicized or slanted.

Helvetica Italic
Isometric
Belwe

Outline

Mark this attribute if each character shows the profile or outline of the letter it represents with white (open) centers.

Helvetica Bold Outline
ITC American Typewriter
EGYPTIAN

Shadow

Mark this attribute if the characters look three dimensional because of gray or black shadows in one or two directions.

Helvetica
Highlight
SANS SERIF

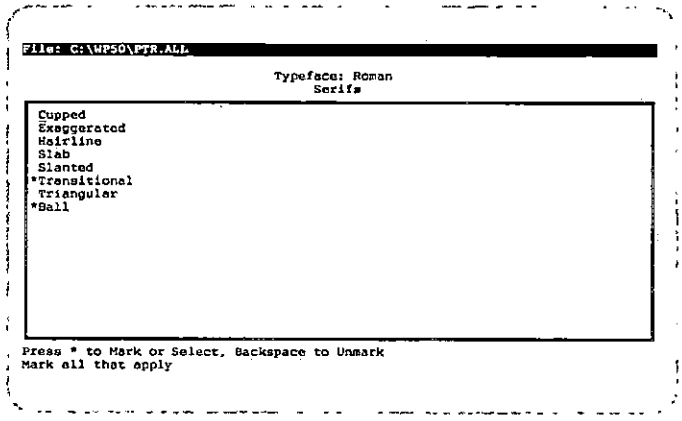
Small Caps

Mark this attribute if all letters are capitals with uppercase being larger than lowercase. The lowercase letters have an x-height similar to that of a normal font's small letters.

TIMES ROMAN SMALL CAPS
GARAMOND
HELVETICA MEDIUM

Serifs

Select Serifs to display a list of serif categories that describe the general design of the characters' main strokes.



Mark the serif that best describes the design of the characters in the typeface. Serifs are fine lines projecting from the main strokes of a character, usually at the corners.

Cupped
Mark this category if the serifs are concave or cupped.

Goudy Handtooled
Caxton Roman
GARAMOND BOLD ITALIC

Exaggerated
Mark this category if most of the serifs are prominent or long.

Caslon Swashes
Cancellaresca Script

Hairline
Mark this category if the serifs are very thin or hairline strokes.

Bodoni Roman
University Roman
Modern No 20

Slab
Mark this category if the serifs are nearly as thick as (or thicker than) the main strokes and are somewhat rectangular.

Lubalin Graph Book
Courier
EGYPTIAN

Slanted
Mark this category if the serifs make an obvious angle (e.g., in the characters "bdlk").

Belwe
Palatino Italic
University Roman

Transitional
Mark this category if the angles between the main strokes and serifs are curved.

Baskerville
ITC Caslon
Times Roman Semi Bold

Triangular
Mark this category if the angles between the main strokes and serifs are sharp.

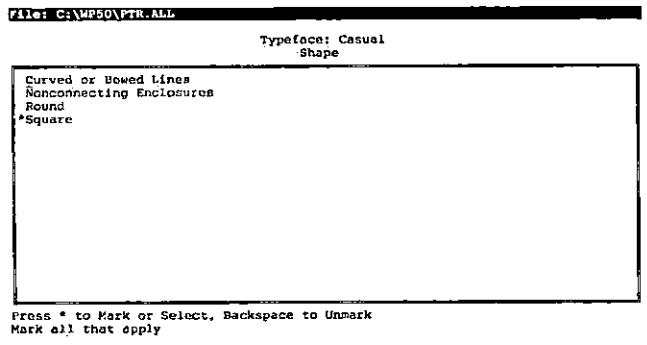
University Roman
Albertus
AUGUSTEA

Ball
Mark this category if the serifs are stubby, round, or spiral.

Century Schoolbook
Gaslon Swashes
ITC American Typewriter

Shape

Select Shape to display a list of attributes that describe the general shape of the typeface characters. The shape of a character is determined by its main strokes.



Mark the attributes that best describe the shape of the font characters.

Curved or Bowed Lines
Mark this attribute if the diagonal lines are not straight (e.g., in the letter "A").

Hobo
Arnold Bocklin

Nonconnecting Enclosures
Mark this attribute if the lines that form enclosures do not connect (e.g., in the letters "bdgpqBP").

Brighton
Plantin
Plantin 110

Round
Mark this attribute if the general character shape is circular rather than oval (e.g., in the letters "CDGOQ").

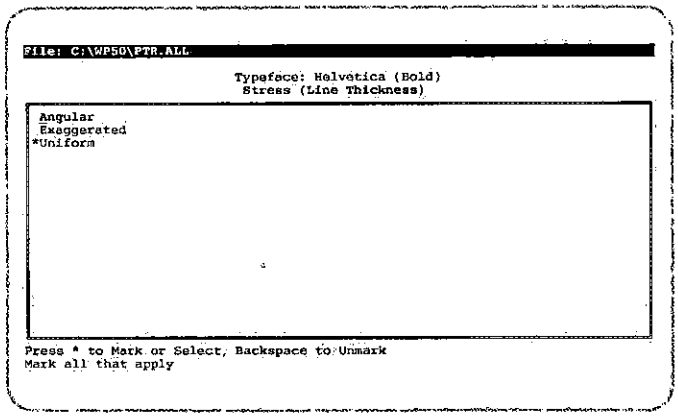
Folio
Avant Garde Gothic Medium
Futura Book

Square
Mark this attribute if the general character shape is square or geometric rather than oval (e.g., in the letters "ABCDGJKO").

Compacta
City
MICROGRAMMA

Stress (Line Thickness)

Select Stress to display a list of attributes that describe the stress or variations in line thickness of the typeface characters. Stress indicates the location of the weight of the typeface.



Mark the attributes that best describe the stress of the font characters.

Angular
Mark this attribute if slanted lines (and portions of curves) have noticeably thicker strokes than horizontal and vertical lines.

Ocde

Exaggerated
Mark this attribute if the difference between thick and thin strokes within a character is extreme.

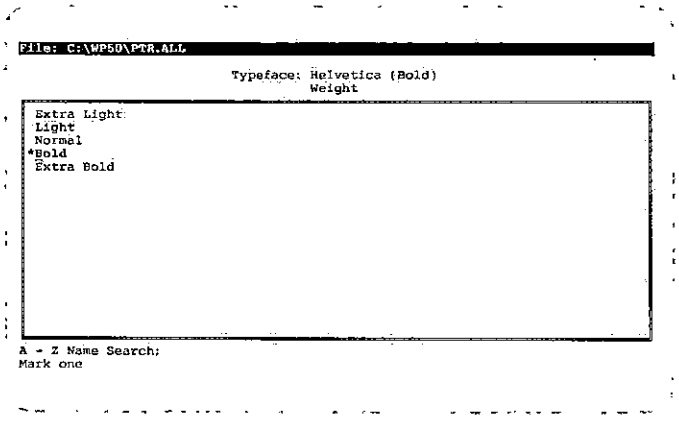
Bodoni Bold Roman
Modern No 20
Broadway

Uniform
Mark this attribute if all lines have nearly the same thickness.

Helvetica Thin Roman
COPPERPLATE
MICROGRAMMA

Weight

Select Weight to display a list of attributes that describe the boldness, or stress or variations, in line thickness of the typeface characters.



Mark the attribute that best describes the weight of the font characters.

Extra Light
Mark this attribute if the characters lines are very thin.

Helvetica Thin Roman
ITC *Avant* Garde Gothic

Light
Mark this attribute if the character lines are thin.

Helvetica Light Roman

Normal
Mark this attribute if the character weight is average.

Helvetica Roman
ITC *Avant* Garde Gothic

Bold
Mark this attribute if the character lines are thick.

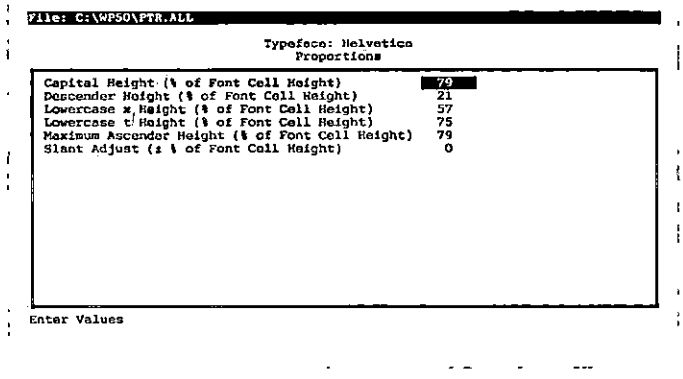
Helvetica Bold Roman

Extra Bold
Mark this attribute if the characters lines are very thick.

Helvetica Black
ITC *Avant* Garde Gothic

Proportions

Select Proportions to display a menu that describes the size of typeface characters as a percentage of the overall character cell height of the font.

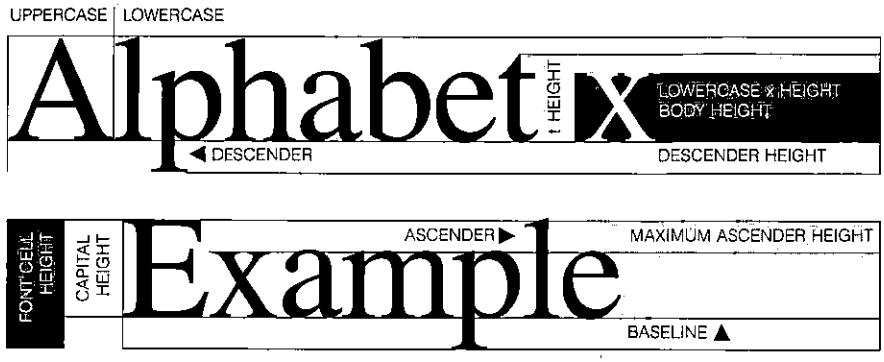

File: C:\WP50\PTR.ALL
Typeface: Helvetica
Proportions
Capital Height (% of Font Cell Height) 70
Descender Height (% of Font Cell Height) 21
Lowercase x Height (% of Font Cell Height) 57
Lowercase t Height (% of Font Cell Height) 75
Maximum Ascender Height (% of Font Cell Height) 79
Slant Adjust (± % of Font Cell Height) 0
Enter Values

The font cell height is listed with each font in the Size and Spacing Information menu.

The height can be determined by overstriking the characters "H" and "y" several times in a line, and then copying the line down the page a few times. Then use the Fixed Line Height feature at the beginning of each line to enter a line height that is close to the point size of the font (e.g., 11.1, 11.2, 11.3 points). After printing the document, find the line where the "y" just barely touches the "H" in the line below. The line height for that line is the font cell height.

You may need to print the document several times, readjusting the line height each time, until a line prints that has the correct cell height.

The values entered in this menu are especially important in the positioning of super/subscripts in WordPerfect.



Capital Height (% of Font Cell Height)
Enter the height of uppercase letters in the typeface. In most cases, the percentage of the capital height added to the percentage of the descender height should equal 100%.

Descender Height (% of Font Cell Height)
Enter the distance from the baseline (lowest point on most capital letters) to the bottom of the descenders (e.g., in the letters "fgjpqy").

Lowercase x Height (% of Font Cell Height)
Enter the height of lowercase characters not including ascenders and descenders. Use the letter "x" as a standard for measuring.

Lowercase t Height (% of Font Cell Height)
Enter the height of the lowercase letter "t" (including the ascender, excluding the descender).

Maximum Ascender Height (% of Font Cell Height)
Enter the height of tallest ascender (e.g., "bdlh"). Measure from the baseline to the top of tallest character with an ascender.

Slant Adjust (% of Font Cell Height)

Enter the height the top of each capital letter is moved to the right or left from its upright position. When the top of the letter is moved to the right, enter a positive amount. When the top of the letter is moved to the left, enter a negative amount.

The slant adjust is used for adjusting diacriticals over slanted characters, and is also used to identify an italics font for AFCs if the Italics or Oblique typeface item is not marked.

The slant adjust is the tangent of the angle of the slant.

Appendix

Feature Summary

The following list provides a description of each of the Printer program features that can be accessed from the keyboard.

Arrow keys (↓,↑,→,←)
Moves the cursor through a command string, from column to column in a menu or table, through a list of items displayed on the screen, or through a Help screen.

When used with **Home**, the arrow keys move the cursor through a list or command string a screen at a time, or to the beginning or end of the list, line, or command string.

Backspace (←)
Clears the asterisk mark (*) from an item in a name list, the name of a font in the AFC list, or a priority in a Substitute font list. Deletes the character to the left of the cursor when editing a command string.

Backspace does not clear a mark in a list that allows only one item to be marked at a time.

Bold (F6)
While in the Helps and Hints screen for a sheet feeder or printer definition, you can bold text by pressing **Bold** once to begin bolding and pressing it again to end bolding.

Bold is displayed as a different color on color monitors. If text is not being bolded on a monochrome or black & white monitor, then you may need to adjust the contrast and/or brightness.

Built-in Variables (Ctrl-F9)
Displays a list of WPDL commands that includes built-in variables. The list can be displayed after selecting Variables from the Printer menu or whenever editing a command string.

By placing the cursor on a variable and pressing **Copy** (Ctrl-F4), the variable is inserted into a command string currently being edited.

Cancel (F1)
Cancels any changes and restores the original expression when editing a command string.

Caps Lock

Lets you type uppercase letters into a command string or Helps and Hints screen without pressing **Shift**. Continuing to press **Caps Lock** toggles the feature on and off.

Character Maps (F4)

Switches to a list of character maps defined for all printers in the current file from almost any menu level in the Printer program.

Once the list of character maps is displayed, you are at the top level of the program. The only way to return to a submenu is by starting over again from the list of printer definitions (F8), PS tables (F6), sheet feeder definitions (Shift-F8), or typefaces (Shift-F6).

Copy (Ctrl-F4)

Copies the printer, character map, PS table, typeface, or sheet feeder on which the cursor is resting to another file. Place the cursor on the definition you want to copy, press **Copy**, and then enter the name of the destination file (a full pathname is allowed). Any definitions with identical names in the destination file are replaced with the incoming definition.

Also copies the variable on which the cursor is resting in a variable list to an expression being edited.

Delete (Del)

Clears the name of a font in the AFC list, a priority in a substitute font list, or an entry in most lists or tables (type **y** to clear the entry). Deletes the character at the cursor when editing a command string.

Delete does not clear a asterisk mark in a list that allows only one item to be marked at a time.

Delete to End of Line (Ctrl-End)

Deletes text from the cursor to the end of a line when editing Helps and Hints or a command string in an editing window. When the cursor is on a command string in the menu, then **Delete to End of Line** deletes the command string from the cursor to the end of the string.

Pressing **Cancel** (F1) restores all editing changes (deleted text, etc.) for the command string you are editing (in any of the editing windows).

Delete to End of Page (Ctrl-PgDn)
Deletes text from the cursor to the end of a Helps and Hints screen or a command string being edited. Pressing **Cancel** (F1) restores all editing changes (deleted text, etc.).

Edit Window (Ctrl-Enter)
Places the command string on which the cursor is resting into an editing window at the bottom of the menu. When you finish, press **Exit** (F7) to place the command string into the menu.

Edit Full Window (Ctrl-PgUp)
Places the command string on which the cursor is resting into a full screen editing window (the menu is temporarily replaced by the window). When you finish, press **Exit** (F7) to place the command string into the menu.

End
Moves the cursor to the end of a line when editing a command string, or when editing a Helps and Hints screen for printer or sheet feeder definitions.

Enter (↵)
Moves down a level at a time through the menu structure. Place the cursor on an item in a menu or table and press **Enter** to move down to the next level.

Enter inserts a carriage return (CR) in a command string when in the editing window. It also marks an item in a list (after typing **y**) and resets the Name Search feature.

Escape (Esc)
Inserts the decimal equivalent of the Escape key ([27]) when editing a command string.

Exit (F7)
Moves up a level at a time through the menu structure. Once the highest level is reached, pressing **Exit** lets you save the current file while exiting, or save the file and clear the Printer program for retrieving another file.

A consistency check is done when saving a PRS file, with notes about any errors saved in a PRS.ERR file. The file can be retrieved into WordPerfect (as a DOS text file) or viewed while in the Printer program by pressing **View Errors** (Ctrl-F2).

Function Variables (Shift-F9)

Displays a list of function variables defined for the printer or character map definition. The list can be displayed after selecting Variables from the Printer menu (for a printer definition) or whenever editing a command string for a printer or character map definition..

By placing the cursor on a variable and pressing **Copy** (Ctrl-F4), the variable is inserted into a command string currently being edited.

Go To (Ctrl-Home)

Lets you move the cursor to a particular item in most menus by pressing **Go To** and entering a number that represents the numeric order of the item in the list (1=1st, 2=2nd, 3=3rd, etc.).

In tables that list all the character sets, you can move the cursor to a particular character by pressing **Go To**, and then entering the character from the keyboard or entering the character set number and character number in the set (e.g., 4,32). Entering a single number moves the cursor to the first character in a character set.

Help (F3)

Displays a keyboard template with function keys noted for each feature. You can continue getting help by pressing a listed function key, **Item Help** (Alt-F3), or **Screen Help** (Ctrl-F3). Pressing **Enter** or the **Space Bar** returns you to the Printer program.

Home

As in WordPerfect, pressing **Home** followed by an arrow key moves the cursor quickly through text in a list, a command string, or Help screen. Pressing **Home** once moves the cursor a screen at a time, while pressing **Home** twice moves the cursor to the beginning or end of a line, list, or command string.

Insert (Ins)

Adds an entry to most menus and tables. After pressing **Ins**, you may be asked to select a pattern by pressing **Enter** or **Ctrl-Enter**. When editing a command string, insert toggles between insert and typeover editing.

Integer Variables (Alt-F9)

Displays a list of integer variables defined for the printer or character map definition. The list can be displayed after selecting Variables from the Printer menu (for a printer definition) or whenever editing a command string for a printer or character map definition.

By placing the cursor on a variable and pressing **Copy** (Ctrl-F4), the variable is inserted into a command string currently being edited.

Item Help (Alt-F3)

Displays help information for the item on which the cursor is resting. If you are in a list of printers, fonts, sheet feeders, etc., press **Screen Help** (Ctrl-F3) for information about the menu. When you finish, press **Enter** or the **Space Bar** to return to the list.

Mark/Unmark (*)

Lets you mark one or more items in a list for copying to another file (e.g., printers, sheet feeders, PS tables) or lets you mark an item in a submenu list for inclusion in a definition. Place the cursor on the item and type an asterisk (*). Type an asterisk again or press **Backspace** to clear the mark from the item.

Some lists allow you to mark only one item at a time. In this case, marking a new item in a list clears the previously marked item.

Mark/Unmark All (Alt-F5)

Marks or unmarks all the items in a list that allows you to mark more than one item at a time.

Name Search (A-Z)

Lets you search for an item in a list by typing the name of the item. As soon as the cursor rests on the first word of the name, you can press **Tab** to begin searching for the second word in the name, etc. When you finish, press **Enter** or an arrow key to end the search.

Num Lock

Lets you use the number pad for typing numbers in a command string or Helps and Hints screen. Continuing to press **Num Lock** toggles the feature on and off. When **Num Lock** is on, the cursor keys on the number pad cannot be used for moving the cursor.

Page Up (PgUp)

Moves the cursor up a screen at a time through a list, a command string in an editing window, a Help screen, or the editing window for Helps and Hints.

Page Down (PgDn)

Moves the cursor down a screen at a time through a list, a command string in an editing window, a Help screen, or the editing window for Helps and Hints.

Printer Definitions (F8)

Switches to a list of all the printer definitions in the file from most levels in the Printer program.

Once the list of printer definitions is displayed, you are at the top level of the program. The only way to return to a submenu is to start over again from the list of character maps (F4), PS tables (F6), sheet feeder definitions (Shift-F8), or typefaces (Shift-F6).

Proportional Spacing Tables (F6)

Switches to a list of proportional spacing (PS) tables defined for all printers in the current file from almost any menu level in the Printer program.

Once the list of PS tables is displayed, you are at the top level of the program. The only way to return to a submenu is to start over again from the list of printer definitions (F8), character maps (F4), sheet feeder definitions (Shift-F8), or typefaces (Shift-F6).

Quit (Alt-F7)

Lets you exit the Printer program from any level in the menu structure. Pressing **Quit** gives you the same prompts and features you see when you press **Exit** (F7).

Retrieve (Shift-F10)

Lets you retrieve a PRS or ALL file into the Printer program. Enter a filename to retrieve the file (a full pathname can be entered).

Save (F10)

Saves the PRS or ALL file you are editing to disk *without* clearing the file from the program. You can then continue editing the file.

While **Save** is an excellent feature for backing up your work while editing a file, you need to use **Exit** (F7) to clear the Printer program before retrieving another file or if you want a consistency check done on the file to be saved.

Shift (⇧)

Lets you type uppercase letters or the symbols listed at the top of the punctuation keys, when you hold down **Shift** and type. If **Caps Lock** is on, holding down **Shift** lets you type lowercase letters.

Screen Down (+ on num pad)
Moves the cursor down a screen at a time through a list, a command string in an editing window, a Help screen, or the editing window for Helps and Hints.

Screen Help (Ctrl-F3)
Displays help information for the menu displayed on the screen. Once you are in the Help screen, you can scroll additional information on to the screen by using the cursor keys. When you finish, press **Enter** or the **Space Bar** to return to the list.

Screen Up (- on num pad)
Moves the cursor up a screen at a time through a list, a command string in an editing window, a Help screen, or the editing window for Helps and Hints.

♦Search (F2)
Lets you search forward through a list for the name of an item by typing all or part of the name. Press **♦Search**, type the search string, and then press **♦Search** again to begin searching.

To search through the entire list, press **Home, Home, Up Arrow** to return the cursor to the top of the list before pressing **♦Search**.

♦Search (Shift-F2)
Lets you search backward through a list for the name of an item by typing all or part of the name. Press **♦Search**, type the search string, and then press **♦Search** to begin searching.

To search through the entire list, press **Home, Home, Down Arrow** to position the cursor at the bottom of the list before pressing **♦Search**.

Setup (Shift-F1)
The Printer program automatically sorts all name lists alphabetically before displaying the list on the screen. You can turn the Sort feature on and off in the Printer program by pressing **Setup**, and then typing **1** to turn Sort on or typing **2** to turn Sort off.

Turning off Sort is especially useful when editing a file with long lists of fonts, PS tables, etc.

Sheet Feeder Definitions (Shift-F8)
Switches to a list of sheet feeder definitions for all printers in the current file from almost any menu level in the Printer program.

Once the list of sheet feeder definitions is displayed, you are at the top level of the program. The only way to return to a submenu is to start over again from the list of printer definitions (F8), PS tables (F6), character maps (F4), or typefaces (Shift-F6).

String Variables (F9)
Displays a list of string variables defined for the printer or character map definition. The list can be displayed after selecting Variables from the Printer menu (for a printer definition) or whenever editing a command string for a printer or character map definition.

By placing the cursor on a variable and pressing **Copy** (Ctrl-F4), the variable is inserted into a command string currently being edited.

Switch (Shift-F3)
Toggles between the Automatic Font Change list and Automatic Font Change Cross Reference list. Also toggles between the Fonts Which Use Resource list and the Groups Which Use Resource list.

Switch toggles between character map variables and printer definition variables only under non-shareable character maps (i.e., maps which contain printer-specific codes). A map can be defined as non-shareable when it is created.

Tab (⇆)
Moves the cursor to items of information that can be edited at the bottom of a menu.

When performing a name search, pressing **Tab** fills in the rest of the word on which the cursor is resting and lets you begin typing the next word.

For example, to locate HP LaserJet Series II when HP LaserJet 2000 is also listed, you might type **hp** to move to the Hewlett Packard printers, type **l** for "LaserJet," and then press **Tab** to fill in the rest of the word before continuing the search.

Text In/Out (Ctrl-F5)
Lets you save or retrieve the command string or Helps and Hints screen currently being edited. Retrieved text is inserted into the command string or help screen. Saved text includes the entire command string or help screen.

Typefaces (Shift-F6)

Switches to a list of all the typefaces in the file from almost any menu level in the Printer program.

Once the list of typefaces is displayed, you are at the top level of the program. The only way to return to a submenu is by starting over again from the list of printer definitions (F8), PS tables (F6), sheet feeder definitions (Shift-F8), or character maps (F4).

Underline (F8)

While in the Helps and Hints screen for a sheet feeder or printer definition, you underline text by pressing **Underline** once to begin underlining and pressing it again to end underlining.

On some monitors, underlined text may not be displayed as underlined, but may be in a different color or displayed in reverse video.

View Errors (Ctrl-F2)

Displays PRS file consistency error messages saved to the PRS.ERR file. The PRS.ERR file is automatically replaced during each consistency check. Consistency checking is done only for PRS files, and only when **Exit** (not **Save**) is used to save the file.

Error Messages

Several error messages have been included in the Printer Program that let you know when information has been entered incorrectly, certain parameters have not been observed, or an improper operating procedure has taken place. These error messages are designed to alert you to potential problems.

Consistency Check Errors

Before you enter a filename while saving a PRS file with **Exit** (F7) or **Quit** (Alt-F7), a check is done for inconsistencies or problems in the file. Information about the inconsistencies is saved in a file called PRS.ERR. The following error messages can appear in a PRS.ERR file.

*You can display the contents of the PRS.ERR file by pressing **View Errors** (Ctrl-F2) while in the Printer program or by retrieving the PRS.ERR file into WordPerfect. Once you correct the errors (in the Printer program), save the file again with **Exit** or **Quit** to see if another message is displayed about inconsistencies being written to the PRS file.*

Built-in fonts should not have a load command

Built-in fonts do not need a load command. Delete any load strings for the font.

Built-in fonts should not use resources

Built-in fonts do not need to be assigned to a resource. Delete any resource information associated with the font (not the resource itself).

Font cell height is zero

The cell height for a font cannot be set to zero points. You need to set the font cell height for the listed font to a number greater than zero.

Fonts may be too similar

The listed fonts are defined in such a manner that WordPerfect cannot distinguish between them. You may need to rename one font or change its cell height, width, units of horizontal or vertical spacing, or typeface description.

Although the names of two fonts may not be the same (or even similar), WordPerfect may read the names as identical after they are hashed (see Hash in the Glossary).

Invalid Code
Somewhere in the font definition, an unrecognized code exists and needs to be deleted. This error message in the PRS.ERR file is rare since a similar one usually appears as you are entering the codes.

No fonts
A printer definition has been created that does not include any font definitions. You need to create at least one font definition.

No high quality fonts
There is no font marked as a high quality font. While you do not need draft or medium quality fonts, you must have at least one font marked as a high quality font.

No map selected
There is no character map selected for the listed font, or a character map was marked, then the mark or map was deleted (by the user). You need to mark a character map for the font.

No portrait or landscape fonts
A font must be marked as either portrait or landscape. Mark the listed font as either portrait or landscape.

No PS table
A proportional spacing table has been marked for the listed font, but the PS table was deleted (by the user). You need to mark a proportional spacing table or the font will not be proportionally spaced. If you unmark a PS table, the font is assumed to be fixed pitch, and no error message is included in the PRS.ERR file.

No quality is set for the font listed
A font is not marked for draft, medium, or high quality. At least one quality must be marked for each font.

No typeface selected
There is no typeface selected for the listed font, or a typeface was marked, then the mark or typeface was deleted (by the user). You need to mark a typeface for the font.

Not built-in, not part of group, and no resource is used
The listed font is not marked as a built-in font nor is it marked as part of a group of fonts (e.g., cartridge). In addition, no resource is marked for the font.

Depending on the font you are defining, you may have to mark it as built-in or as part of a group. Unless the font is built-in or part of a group, you must assign it to the appropriate resource.

Not built-in, not part of group, and no load command
The listed font is not built-in nor is it part of a group. In addition, a string used to download the font is not included in the font definition.

If, however, the font cannot be loaded in the middle of a print job, go into WordPerfect and always mark the font as initially present and treat it as if it were built-in. In this case, you do not need a load string, but you will need to load the font into the printer prior to starting WordPerfect.

Optimal character width is zero
A font cannot have an optimal character width of 0%. Set the optimal character width to a percentage greater than zero.

Optimal space width is zero
A font cannot have an optimal space width of 0%. Set the optimal space width to a percentage greater than zero.

Pitch is zero
The pitch for a font cannot be set to zero characters per inch. You need to set the pitch for the listed font to a number greater than zero.

Style, serifs, shape, and stress should be the same for a typeface family
The typeface descriptions for fonts in the same typeface family are not identical. You need to make sure that style, serifs, shape, and stress settings for typeface definitions in the same typeface family (e.g., Courier, Courier Bold, Courier Italic) are identical.

Typeface descriptions and name hashes match but the names do not
WordPerfect cannot differentiate between typefaces of two fonts with different names because typeface and name hash (see *Hash* in the *Glossary*) information for two fonts are identical. Change the name or description (style, serifs, shape, and stress) for one of the typefaces.

Expression Error Messages

The following error messages may appear as you are entering expressions in the Printer program.

Invalid character or digit
A character or number in an expression is not recognized by WordPerfect. Check for typing errors. For details on entering characters correctly, turn to *Character Strings* under *WordPerfect Printer Definition Language* in *Appendix.*

Invalid command
WordPerfect cannot recognize one of the commands in the expression. Check for typing errors or undefined variable names.

Invalid digit in number
Depending on how you are entering character strings (e.g., binary, hexadecimal, ASCII, etc.), some characters are unrecognizable in a string. Check for typing errors. For details on entering characters correctly, turn to *Character Strings* under *WordPerfect Printer Definition Language* in *Appendix.*

Invalid numeric expression
The numeric expression is not recognized by WordPerfect. Check for typing errors.

Missing argument or missing comma
Either a necessary variable or a necessary comma within a variable has been omitted. Type the necessary information or check for typing errors.

Missing or invalid numeric argument
A number is missing or has been entered incorrectly in a function that requires a number. Type a number or check for typing errors.

Missing or invalid string argument
A necessary variable within a function has been omitted or entered incorrectly. Type the necessary information or check for typing errors.

Not enough room to store string
The expression you have entered exceeds the 10K limit. Edit the expression as necessary to allow it to fit within that limit.

Number is too big
A number entered in a numerical expression is too large for established parameters. The limit for numbers in many of the Printer Program's numeric expressions is 65,535. Use a number within the Printer program's parameters for the expression.

String must contain characters

A string between quotation marks does not include characters. Include a character between the quotation marks.

Since the quotation mark characters cannot be represented as """", you should use ASCII character [34].

Variable cannot be changed

The variable cannot be changed or reassigned. Do not try to change it.

Other Messages

The following is a list of some of the other messages that can appear as you are working in the Printer program.

Access Denied

You cannot access the requested file because it is locked. Copy the file to a local directory, then flag the file for read and write.

Cannot create file

A file cannot be created under the filename you entered probably because a locked file of the same name exists. Save the new file under a different name.

Changes would exceed size limit

The changes you are making exceed the size limit for a particular portion of the Printer program information. For example, character map information is limited to 63.5K of information. Edit the changes as necessary to stay within the limit.

End of file

A searched for unit (PS table, character map, printer definition, sheet feeder definition, etc.) cannot be found in RAM, virtual files, or the original file.

Limit of 16 resources

You cannot include more than 16 resources on the Resource menu.

Must save current file first

You cannot retrieve another ALL or PRS file while you are currently working on one. Save the first file with **Exit** (F7) or **Quit** (Alt-F7), clear the program, then retrieve the second one.

Printer file is an incorrect version
Your PTR.EXE file needs to be updated. Call WordPerfect's Information Services at (801) 225-5000 for ordering information. The number is not toll-free.

Too many open files
Your operating system cannot simultaneously open as many files as are necessary to run the program. Close some open files (e.g., by exiting a program such as WordPerfect) or increase the FILES= command in the CONFIG.SYS file.

WordPerfect 4.2 Printer Commands

Several special codes were available for use in the WordPerfect 4.2 Printer program. The following information gives you the WordPerfect 5.0 Printer program equivalent commands for the WordPerfect 4.2 special codes.

4.2 Code	5.0 Variable or Command
<D>	REPOSITION
<F>	BEEP, WAIT
<G>	SENDLO(HS)
<H>	ASCII(HS)
<K>	SENDLO(VS)
<L>	ASCII(VS)
<S>	SENDLO(HS)
<T>	ASCII(HS)
<X>	DOWNLOAD("<FILE-NAME>")

The <I> special code is no longer necessary but can be duplicated using the SETMETHOD variable.

The <A>, <B>, <C>, <J>, <M>, <N>, <O>, <P>, <Q>, <R>, <U>, <V>, and <W> special codes are no longer necessary in WordPerfect 5.0, but can be duplicated with user-defined variables.

The WordPerfect Printer Definition Language appendix provides information about the variables and commands available in WordPerfect 5.0. For examples in the manual of using commands or variables, look for the command or variable name in the *Index*.

WordPerfect 5.0 Developer's Toolkit

For those individuals or companies who are developing programs or need to create files that share information with WordPerfect 5.0, a WordPerfect 5.0 Developer's Toolkit is available.

The toolkit is designed for the following types of needs.

- Customers who need to convert files or data from some other source into WordPerfect 5.0 compatible documents.
- Programmers who wish to develop "add-on" programs that work together with WordPerfect.
- Hardware developers who wish to write device drivers to allow WordPerfect to work with their particular hardware (such as a printer or screen display).
- Users who need to take WordPerfect files and extract information from them for use with other programs.

If you find that you need additional information about the structure of PRS or ALL files, the compact form of the WPDL, etc., then you can request a toolkit by writing to the following address.

PC Development
Attn: Developer's Toolkit
WordPerfect Corporation
1555 N. Technology Way
Orem, UT 84057

You can also call (801) 227-7078 (8:00am to 5:00pm MST).

The information in the Developer's Toolkit is not confidential; however, the WordPerfect program itself is copyrighted, and should not, under any circumstances, be modified or tampered with.

WordPerfect Printer Definition Language (WPDL)

The WordPerfect Printer Definition Language (WPDL) is a powerful programming language used in the Printer program to enter commands that provide information to WordPerfect and your printer.

The commands, called WPDL expressions, are used throughout a PRS or ALL file. They can consist of character strings which are sent directly to the printer, numerical expressions which are calculated and sent to WordPerfect, or both. Functions and operators are also provided to help create and calculate expressions.

For example, the Set HMI command for the Diablo 630 is a **[27,31]SENDLO(HS+1)** expression that includes a character string decimal value ([27,31]), a string output function (SENDLO), a built-in variable (HS), and an arithmetic operator. These items represent a string of characters sent directly to the printer.

However, the Maximum Units value in the same menu is a numerical string whose value is calculated and sent to WordPerfect to use when printing a line.

Multiple Values

Although there may be more than one numerical value or character string in a WPDL expression, multiple values and character strings in a single expression are treated differently. Only the value that is the last value calculated in a numerical expression is sent to WordPerfect, while character strings are sent to the printer as they are encountered.

Separating Expressions

A space or blank line must be used to separate one expression from another. They may also be used anywhere to improve readability. Spaces and blank lines are always ignored except within double quotation marks ("), or between the BEGINTEXT and ENDTEXT commands.

Down Arrow (↓)

After entering an expression in the edit window (Ctrl-Enter) or the full edit window (Ctrl-PgDn), each new line is represented by a down arrow (↓) in expression column of the menu.

Character Strings

Character strings include one or more bytes and are sent directly to the printer. They can be entered by their decimal, hexadecimal, octal, or binary values, or by their character or ASCII text representations.

The following are examples of character strings:

Decimal	[27,30,13]
Hexadecimal	<1b,1e,0d>
Octal	{33,36,15}
Binary	:11011,11110,1101:
Character	"ABCDEFG"
ASCII	BEGINTEXT *This is a sample of ASCII text representation. All text between the BEGINTEXT and ENDTEXT commands is sent to the printer unchanged. Hard returns are sent as line feeds ([10]s). The commands must be placed on separate lines or they are treated as part of the text. This method is useful in controlling PostScript devices.* ENDTEXT

Notice that decimal values must be entered between square brackets [#], hexadecimal values between angle brackets <#>, octal values between braces {#}, binary values between colons :#:, and character representations between double quotation marks "#".

Only byte values from 32 to 126 can be entered as character representations. The ASCII text representation supports ASCII codes from 32 to 127. All other values must be represented in decimal, octal, hexadecimal, or binary form.

Multi-byte printer strings can be represented by separating byte values with commas within numeric format delimiters (e.g., [27,30,13]). No commas are needed within ASCII strings.

It is more space-efficient (but sometimes less readable) to represent all values in a WPDL string in the same format than it is to use a mixed format. For example, Escape A can be stored in 3 bytes as decimal [27,65] or hex<1B,41>, but requires 4 bytes to represent the mixed-format [27]"A".

Numerical Expressions

Operands in a numerical expression can be constants, built-in WPDL variables, or user-defined variables. Constants in numerical expressions can be entered in decimal, hexadecimal, octal, binary, or character form.

All WPDL variables, whether built-in or user-defined, are signed double words. This means they can have values from -2,147,483,648 to 2,147,483,647. Built-in variables are displayed in uppercase letters in an expression, while user-defined variables are displayed in lowercase letters.

Constants

Examples of the constants 10, 40, and 100 are listed below:

Decimal	10	40	100
Hexadecimal	0ah	28h	64h
Octal	12q	50q	144q
Binary	1010b	101000b	1100100b
Character	n/a	'(,'	'd'

Character constants (numbers) in numerical expressions are entered in single quotes. Character strings to be sent to the printer are entered in double quotes.

Built-in Variables

The following is a list of the WPDL built-in variables and their values. Each variable represents a current setting in a PRS file or in a WordPerfect document during a print job.

If the variable represents a setting in a WordPerfect document (e.g., PAGESIZE), then the value of the variable changes as each new Paper Size/Type code is encountered during the printing of a document.

All the variables that have a value of "1" when a particular attribute is on only do so when a driver is being used to print the attribute. If the attribute is being done with an AFC, the variables will *not* have a value of one.

For additional details about the built-in variables, turn to Variables in the Printer section of Reference.

Variable	Description
BIN	Bin number currently in use.
BLUE	Blue value of red-green-blue.
BOLD	Has a value of one if Bold is on.
CAPHEIGHT	Cap height of current font in 1200ths.
CHARSET	Character set number of the current font.
COLOR	Printer's ID for color.
COPIES	Number of copies to be printed.
CURWIDTH	Width of current character in WUNITS (only used in character map strings).
DHEIGHT	Descender height of current font in 1200ths.
DUNDERLINE	Has a value of one if Double Underline is on.
FNTNUM	Unique font number assigned to each font (0-1500) in the order they appear in the PRS file (e.g., 1st font is assigned 0).
GRAPHCOUNT	Width of a graphic object in bytes.
GRAPHDENSITY	Printer's ID for graphics resolution.
GRAPHHEIGHT	Height of a graphic object in device resolution units.
GRAPHICS	Are graphics being printed? (1=yes, 0=no).
GRAPHWIDTH	Width of a graphic object in device resolution units.
GRAYSCALE	Gray level intensity for a shaded box.
GREEN	Green value of red-green-blue.
GRPNUM	Unique group number for each group, 0-1500.
HS	Current horizontal spacing (for Set HMI or Horizontal Microspace commands).
HUNITS	Horizontal movement units in the current font.
HUNITSN	Numerator of horizontal movement units.
ITALICS	Has a value of one if Italics is on, or the Italics method if no AFC has been selected.
NO	Always has a value of 0.
NOMWIDTH	Nominal character width of the current font in 1200ths.
ORIENTATION	Orientation of the current font (0=portrait, 1=landscape, 2=reverse portrait, 3=reverse landscape).
PAGE	Physical page number of the current print job.
PAPERLENGTH	Length of paper in 1200ths.
PAPERSIZE	Paper Size/Type.
PAPERWIDTH	Width of paper in 1200ths.
PITCH	Character spacing in WUNITS.
PTSIZE	Current font point size in 3600ths.
QUALITY	Print quality (0=draft, 1=medium, 2=high).

RED	Red value of red-green-blue.
REDLINE	Has a value of one if Redline is on.
REM	Remainder of the last divide or divide-and-round operation.
RESOURCE	Resource ID of the resource used by the current font/group.
SHADOW	Has a value of one if Shadow is on.
SLANT	Slant of the current font in 1200ths.
STRIKEOUT	Has a value of one if Strikeout is on.
UNDERLINE	Has a value of one if Underline is on.
VUNITS	Vertical movement units.
VUNITSN	Numerator of vertical movement units.
VS	Current vertical spacing (for Set VMI or Vertical commands).
WEIGHT	Current font weight (0=extra light, 1=light, 2=normal, 3=bold, 4=extra bold).
WUNITS	Character width units in the current font (usually same as HUNITS).
XHEIGHT	X height of current font in 1200ths.
XPOS	Current horizontal position in HUNITS.
XRESOLUTION	Current x resolution.
YES	Always has a value of 1.
YPOS	Current vertical position in VUNITS.
YRESOLUTION	Current y resolution.

User-Defined Variables

You can create or access a table of your own string, function, and integer variables for a printer definition or character map by pressing **String Variables** (F9), **Function Variables** (Shift-F9), or **Integer Variables** (Alt-F9) while entering an expression.

For details on string, function, and integer variables, turn to Variables in the Printer section of Reference.

Functions

Both string output functions and numeric functions are available to send values directly to the printer (e.g., character strings) or to calculate a value for a numeric expression.

String Output Functions

Numerical values can be calculated and sent to the printer in binary or ASCII format. This is necessary for several WPDL expressions (e.g., Set HMI).

SENDHI(*var*)	Sends the high byte of the low word of a variable in binary form.

SENDLO(*var*)	Sends the low byte of the low word of a variable in binary form.
SENDHILO(*var*)	Sends the high, then low bytes of the low word in binary form.
SENDLOHI(*var*)	Sends the low, then high bytes of the low word in binary form.
DOWNLOAD(*file*)	Sends a file to the printer. Only a filename is specified here. The path comes from information entered by the user at printer selection time.
ASCII(*expr*,*count*)	Sends the value of *expr* to the printer in ASCII form. If *count* is present, then leading zeros are forced onto the result until the result uses count digits. If *count* is omitted, then no leading zeros will be used. If the value is negative, a '-' sign is sent before the number. The minus sign is not included in the digit count if a count is specified.

Numeric Functions

Numeric functions are like string output functions except that they return a value to be used in a numerical expression rather than sending the value directly to the printer.

CONVERT(*value*,*oldunits*,*newunits*)Converts a value from one set of units to another.

CHRWID(*char#*)	Gets the character width for *char#* number in the current font.

An example of a numeric function would be AB:=CHRWID('A')+CHRWID('B').

Operators

Operators are provided for performing standard arithmetical functions, creating conditional expressions, and other miscellaneous features.

Arithmetic Operators

Arithmetic operators are very similar to operators in the C programming language (with the exception of the := operator). The following is a list of arithmetic operators available for use in creating expressions.

Operator	Name	Precedence	Binding
-	negate	12	R-L
~	bitwise Not	12	R-L
!	logical Not	12	R-L
*	multiply	11	L-R
/	divide	11	L-R
//	divide and round	11	L-R
%	modulo	11	L-R
+	add	10	L-R
-	subtract	10	L-R
<<	shift left	9	L-R
>>	shift right	9	L-R
<	less than	8	L-R
<=	less than or equal	8	L-R
>	greater than	8	L-R
>=	greater than or equal	8	L-R
==	equal	7	L-R
!=	not equal	7	L-R
&	bitwise And	6	L-R
|	bitwise Or	5	L-R
^	bitwise Xor	4	L-R
&&	logical And	3	L-R
||	logical Or	2	L-R
:=	assignment	1	R-L
+=	add and assign	1	R-L
-=	subtract and assign	1	R-L

Precedence indicates which operations are performed first. The greater the number, the higher the precedence. For example, in the expression **A:=B+C*D** multiplication occurs first because it has the highest precedence. The assignment occurs last because it has the lowest precedence.

Binding indicates which operation is performed first if two operators have the same precedence value. In the expression **A:=B:=C*D*E** the multiplication of C and D occurs before the multiplication of D and E because binding for the multiplication operator is left to right. The assignment of C*D*E to variable B occurs before the assignment to variable A because the assignment operator has right to left binding.

Parentheses may be used to alter the operator precedence. Operators inside of parentheses have the highest precedence and are those operations are performed first. In the expression **A:=B+C*D** multiplication occurs first. In the expression **A:=(B+C)*D** addition is performed first.

Conditional Operators

WPDL allows conditional execution of expressions. The following is a list of conditional operators available.

IF(*expr*) Evaluates *expr* to true (non-zero value) or false zero value). If the result is true, execution continues until an ELSE or ELSEIF is found. At that point, executions skips to ENDIF. If the result is false, execution skips to the ELSE or ELSEIF and continues from there. *ELSE and ELSEIF are optional. If they are not found and the expression is false, execution skips from IF to ENDIF.*

ELSE Optional operator used to separate the code executed if an expression is true from the code executed if an expression is false.

ENDIF Ends the IF conditional.

ELSEIF(*expr*) A combination of an ELSE immediately followed by an IF. If the expression from the prior IF or ELSEIF conditional is false, then *expr* is evaluated. If expr is true, execution continues. If *expr* is false, execution skips to the next ELSE, ELSEIF, or ENDIF.

WHILE(*expr*) Evaluates *expr* and jumps to ENDWHILE if *expr* is false.

ENDWHILE Loops back to WHILE to reevaluate the expression.

The logical and comparison numerical operators always return a value of 1 if the operation is true or 0 if the operation is false. Any non-zero value is always considered true in WPDL conditionals and a zero value is always considered false.

The following are some examples of how conditional operators are used:

```
IF(abc==25)
   "the value of abc is 25"
ELSE
   "abc is"ascii(abc)
ENDIF

n:=1
WHILE(n<=10)
   "the value of n is"ascii(n)[13,10]
n+=1
ENDWHILE

IF(fred<10)
  "fred is a single digit"
ELSEIF(fred<100)
  "fred is two digits"
ELSEIF(fred<1000)
  "fred is three digits"
ELSE
  "fred is four or more digits"
ENDIF
```

SETMETHOD Operator

By using the SETMETHOD (driver,type) operator, you can select from a variety of methods for horizontal motion, vertical motion, and attributes.

For example, by entering SETMETHOD(HORIZONTAL,RELATIVE) in the font select string, the Relative Horizontal Spacing (microspace) method can be selected for a particular font. The SETMETHOD variable can then be used in the deselect font string to set the horizontal motion method back to the default method (the method marked with an asterisk).

For an example and more details about using the SETMETHOD operator, turn to Fonts in Applications.

The following is a list of drivers and the types for each driver that can be used with the SETMETHOD operator.

Driver	Types
HORIZONTAL	HMI MSHM RELATIVE ABSOLUTE
VERTICAL	VMI RELATIVE ABSOLUTE
BOLD	AUTOSAME DOUBLEOVER TRIPLEOVER MULTIPLEPASS BACKSPACE NOTSUPPORTED
UNDERLINE	AUTOSAME AUTOSEPARATE WPSEPARATE BACKSPACE NOTSUPPORTED
ITALIC	AUTOSAME SINGLEUNDER NOTSUPPORTED
DOUBLEUNDER	AUTOSAME AUTOSEPARATE WPSEPARATE AUTOUNDER2 WPUNDER2 SINGLEUNDER NOTSUPPORTED
STRIKEOUT	AUTOSAME AUTOSEPARATE WPSEPARATE BACKSPACE NOTSUPPORTED

REDLINE	AUTOSAME AUTOSEPARATE WPSEPARATE BACKSPACE NOTSUPPORTED
SHADOW	AUTOSAME MULTIPLEPASS NOTSUPPORTED

Special Operators

The following is a list of the WPDL operators that do not fall into a specific category.

;	Text between a semicolon and the end of a line is treated as a comment field and is ignored. A new line will automatically be inserted if you do not put one in.
BEEP	Causes WordPerfect to emit a beep to signal the user that there is a message in the Printer Control menu.
PROMPT("*message*")	"*Message*" is output on the status line in the Printer Control menu.
REPOSITION	Causes the printer to reposition to the current horizontal location.
WAIT	Causes WordPerfect to pause and wait for a GO in the Printer Control menu.

Glossary

Glossary

ALL File
A file which contains multiple printer definitions, character maps, PS tables, typeface definitions, form definitions (printer specific), and/or sheet feeder definitions.

ASCII
American Standard Code for Information Interchange is one of the standard formats for representing characters so that files can be shared between programs. A text file is in ASCII format.

Attribute
A characteristic which alters the appearance of text (e.g., Extra Large, Italics, Bold, Fine Print). In WordPerfect, color changes are independent from attribute changes.

Automatic Font Change (AFC)
A font change which is not explicitly specified by the user in the document but which automatically takes place to handle a change in the current attribute, character, or orientation.

Baseline
An imaginary line on which type rests. Descending characters hang below the baseline.

Bit
A binary digit is the smallest storage unit for data in a computer.

Bit Map
To form an image on the screen or at the printer (e.g., an illustration or photograph) with dots.

Bottom Shoulder Height
The distance between a font's baseline and its bottom limit line. This distance is almost always greater than the descender height because the bottom shoulder height also includes a small amount of leading (see *Leading*).

Buffer
A temporary data storage area used by computers and some printers.

Byte
The amount of space needed to store a single character (number, letter, or code). A byte generally represents eight binary digits (bits). For example, if a character requires one byte of storage space, that one byte is translated to eight bits when processed in the computer. 1024 bytes equals one kilobyte (Kb or K).

Capital Height
The distance between the baseline of a font and the top of any capital letter.

Card
A removable printed-circuit board that is plugged into an expansion slot (e.g., graphics card, clock card, etc.).

Cartridge Fonts (Hard Fonts)
A group of fonts contained on a unit which plugs into a computer and uses circuitry and memory chips to reproduce the fonts on the list. Cartridge fonts are unlike soft fonts in that they do not require download time and are not lost from memory in the event of a power failure.

Character Map
A table which identifies printable characters and indicates how they are to be printed. Character maps are created and named independently of fonts so they may be shared by any number of fonts. They contain strings of characters to be sent to the printer when a given character is printed.

Character Set
A fixed subset of the WordPerfect character set. At present, there are 13 character sets which make up the WordPerfect character set: ASCII, Multinational 1, Multinational 2, Math, Math Extension, Typographic Symbol, Iconic Symbol, Box Draw, Greek, Hebrew, Cyrillic, Japanese Kana, and User Defined.

CHU (Character Width Units)
Units used to specify character widths in the current font. CHUs are used when justification and kerning is performed. CHUs and printhead motion units (PMU) may be different.

Compound Characters
WordPerfect characters which can be printed by overstriking a base character and a diacritical character. Compound characters which are not directly supported by a font will still be formatted and printed correctly if the character is a compound character and both pieces of the compound character are supported by that font.

When such a character is broken into its component parts, the diacritical character always resides in the same character set (subset) as the compound character, and the base character resides either in the ASCII set or the same character set as the compound character.

Defaults
The startup settings for WordPerfect stored in the WP{WP}.SET file. The defaults may be changed temporarily, but will be reset each time the program is started. To change defaults permanently, use the Setup feature in WordPerfect.

Descender Height
The distance between a font's baseline and the bottom of any lowercase letter with a descender (e.g., j, p, q, y).

Diacritical Characters (Marks)
Accent characters which may be combined with unaccented characters to create compound accented characters. As defined in the WordPerfect character set, diacritical characters which print above base characters are assumed to be positioned just above the x-height line of the font (unless "Diacriticals Positioned (Vertically) for Uppercase Characters" is marked on the Miscellaneous Font Features menu). Diacriticals which print below the line are assumed to be positioned just below the baseline.

WordPerfect makes print-time adjustments to the position of diacritical characters on the basis of the base character's case (upper or lower), ascender height, and slant.

DOS
The Disk Operating System is software that directs the flow of data between disk drives and your computer. Without an operating system, your computer can do nothing.

Download
To transfer a load from a diskette into the printer's memory. With regard to fonts, downloading is the process of copying a soft font file from a diskette into the printer's memory.

Driver
A set of commands used to run peripheral devices. For example, a PRS file is a driver used to run a printer.

Expanded Memory
Lotus Intel Microsoft specification for addressing more than 640K of memory. To access expanded memory, you need a special memory board and/or driver.

Font
A unique combination of typeface, type size, and type weight (e.g. Times Bold 10 point). On most laser printers, different printing orientations (portrait/landscape) require different fonts. However, if the printer can rotate fonts, each font on the printer can be both portrait and landscape.

Font Cell Height
The font cell is the rectangular area in which all the characters of a font have been designed to be placed, and is larger than any single character. The font cell height value is the actual point size of the font used by WordPerfect to determine line spacing (leading) and to position diacritical marks over lowercase and uppercase letters.

Font Definition
A small data structure which identifies all essential traits of a font. Font definitions are used only by the font mapper and the formatter, so they exist only in WordPerfect documents. They are stored with the font information in the document prefix as well as in all font change codes.

Font Group
A collection of fonts which must be manipulated as a unit (e.g. print wheels with multiple fonts, font cartridges).

Font Library
The portion of a printer definition which describes all fonts available to that printer.

Font Mapper
An internal WordPerfect procedure which compares a collection of fonts against a font definition and finds the closest match.

Forms
The "paper" a document is printed on. Forms include blank paper, letterhead, precut labels, envelopes, and preprinted forms (such as 1040EZ tax forms).

Forms have names and characteristics (type, width, height, minimum margins, and font orientation). Forms are also assigned a location when the printer is selected (handfed, continuous, or sheet feeder bin number). Form selection codes replace the old sheet feeder bin number codes.

Greeking
The act of representing text with an illegible typeface or a series of straight lines.

Hash
Whenever you enter a name for a typeface definition, WordPerfect calculates a number (hashes) for the part of the name that is not in parentheses (e.g., Helvetica). The part of the name in parentheses (e.g., (Bold)) is not hashed. If two typeface names have identical hash numbers calculated, and the part of the name in parentheses is identical, then an error message is displayed in the Printer program when entering a new name for a typeface definition.

Icon
Symbols used in place of words to list menu options on some bitmapped machines.

Internal Fonts (Built-In)
Fonts that are kept in the printer's ROM when the printer is switched on (e.g., Courier and Line Printer on the Canon and Hewlett-Packard).

Italics
A font style that slants the characters in the font.

Kerning
Space reduction between specific letter pairs. Kerning goes beyond proportional spacing to tighten letter pairs that appear to have too much white space in between them (e.g., Ti, AV, and AW).

Kilobyte (Kb or K)
1024 bytes of information or storage space.

Landscape
A font orientation in which the font prints lines of text perpendicular to the insertion edge of the form.

Leading
Extra spacing added to the point size of a font to increase the vertical spacing between lines of printed text. For example, a Times Roman 11 point font is usually assigned 1 point of leading to make the lines of printed text more legible.

When used in the publishing industry, the term "leading" may also include the point size of the font. For example, a Times Roman 11 point font may be assigned 12 points of leading (11 + 1 = 12).

Line Length
The length of a line of type. Line length is usually expressed in picas and points.

Lowercase Height (x height)
The distance between a font's baseline and the top of the lowercase letter x.

Megabyte (Mb or M)
1024 kilobytes (1,048,576 bytes) of information or storage space.

Memory
A computer's or printer's temporary data storage area (see *RAM* and/or *ROM* below).

Native Character Set
The character set recognized by a given operating system. Native characters and strings are used only for filenames and display strings. These character sets have no meaning in 5.0 documents since all native characters are converted to WordPerfect characters before they are inserted.

Parallel Interface
An interface in which several bits of information (usually 1 byte) are transmitted simultaneously.

Parallel Printer
A printer that accepts information by way of a parallel interface.

Pathname
A full pathname includes the drive, root, and any subdirectory names. Each name is separated by a backslash (\). For example, "C:\WP50" refers to the WP50 directory on drive C. The pathname "C:\WP50\PRINT" refers to the PRINT subdirectory (or file) on the WP50 directory on drive C.

Pica
Typographic unit of measurement equaling 1/6 of an inch. Many dot matrix printers use this term to refer to 10 cpi (characters per inch).

PMU (Printer Motion Unit)
Unit of horizontal printhead motion for the current font. PMUs are used internally when justification and kerning is performed and are stored and entered in 1/3600 of an inch. PMUs are always represented as a rational number (fraction of an inch). While 1/3600 of an inch is the smallest unit allowed, the value you can enter can be (and usually is) larger.

Point
Points are commonplace units of measurement in the publishing industry. To the computer and printer, points equal 1/72 of an inch. In the publishing industry, a point is 1/72.27 of an inch.

While the difference is very small (0.4%), you should be aware of it in order to prevent possible problems.

Port
A connection device between a computer and another component such as a printer or modem. For example, a printer cable is plugged into the printer port on the computer so information can be sent to the printer.

Portrait
A font orientation in which the font prints lines of text parallel to the insertion edge of the form.

PostScript
A printer language used to describe how to print a page of text and/or graphics images. The language is designed by Adobe Systems and is included in many laser output devices such as the Apple LaserWriter.

Prefix
The non-sequential information attached to a WordPerfect Corporation file which precedes the sequential portion of the file. A prefix always begins with a fixed 16 byte structure which identifies the file as a WordPerfect Corporation file. It contains other information including the product for which the file was created, file type, file version number, encryption key, and pointer to the sequential data.

Print Formatter
The portion of the printing code which interprets the codes in a document and converts it to a page and line-oriented form which can be easily printed.

The print formatter passes all text, font changes, and attribute changes to the print scanner. This includes rearranging of text from headers, footers, footnotes, endnotes, and columns so that text prints in the proper order (on the correct page) and identifying all automatic font changes performed by the formatter.

Print Scanner
The portion of the printing code which reformats the printed document according to the capabilities of the print station.

The print scanner maps font and attribute changes to appropriate fonts on the new printer. It also calculates exact character positions required to perform justification, centering, kerning, and advances, and performs any character substitutions needed to insure that all characters in the document are printed.

Printer Definition
A data structure which describes the capabilities of a printer and the codes needed to control it.

PRS File
A file which contains the printer definition and completely describes a print station (printer, sheet feeder, fonts, and forms).

PRS files are created at printer selection time. They contain all the information WordPerfect needs to format and print documents on a given printing hardware configuration. Each unique printing configuration requires a unique PRS file. For example, all HP LaserJet printers used within a company would require their own PRS file unless they all used identical fonts, sheet feeders, and forms.

PS/Kerning Table
A table containing character width and relative positioning information for a specific group of characters.

Proportional spacing tables are created for a specific point size and width, but they can be shared by fonts of different point sizes provided the relative widths of all the characters remain unchanged. Kerning information is optional.

PSU (Point Size Unit)
Vertical distance expressed as 10,000ths of the font cell height of the font with which it is associated. PSU quantities may be converted to 1200ths by multiplying by FPSIZ (3600ths) and dividing by 30,000.

RAM
Random Access Memory is the working space or temporary storage area in a printer or computer for storing soft fonts or running a program. RAM is erased when the power is turned off.

Resolution
The number of dots per inch used to create an image. Laser printers usually print approximately 300 dots per inch.

Resource
Anything which restricts the number of fonts or groups which may be loaded at a time (e.g., printheads, slots, built-in printer disk drives, memory). Resources are defined and named in the printer definition. They are classified as unitary resources (only one exists) or quantity resources.

Reverse Print
White characters on a black background.

ROM
Read Only Memory contains information a computer or printer uses to run the system or store fonts. ROM is permanent and is not erased when the power is turned off.

Roman
Upright text (as distinguished from italics). Often referred to as regular text.

Sans Serif
Typefaces without serifs (e.g., Helvetica and Futura).

Scaling
The ability to print any single font in a variety of sizes. For example, PostScript printers such as the Apple LaserWriter Plus have scaling.

Scanner, Optical Character
A device which reads typed characters on a page into an ASCII file on disk.

Scanner, Rastor
A device which converts a paper drawing or photograph into a computer image that can be saved on disk.

Script
A typeface designed to look like handwriting.

Serial Interface
An interface in which information is transmitted one bit at a time.

Serial Printer
A printer than accepts information from the computer by way of a serial interface.

Serif
Typefaces with short lines stemming from a character (e.g., Times Roman, Courier, and most computer screen character sets).

Sheet Feeder Definition
A data structure which describes the capabilities of a sheet feeder (including the number of bins it supports) and the codes needed to utilize it.

Soft Fonts
These fonts are similar to cartridge and internal fonts except that the data used to recreate the fonts is found in a file on diskette. A separate file is used for each font. Soft fonts reside in the printer's memory and are erased when the printer is turned off. The more memory (RAM) available at the printer, the more soft fonts can be downloaded.

When the printer is switched on, soft font files must be copied (downloaded) from the diskette to the printer's memory.

Symbol Set
A unique sub-grouping of all the available characters in a font. Each symbol set is defined with a specific set of applications in mind. For example, the IBM-US symbol set was defined to support IBM PC applications.

Top Shoulder Height
The distance between a font's baseline and its top limit line. This distance is almost always greater than the capital height because the top shoulder height also includes a small amount of leading.

TSR
Terminate and Stay Ready (or Resident) program.

Typeface
The unique design of a group of characters (e.g., Times Roman, Helvetica, Letter Gothic, and Courier).

Typeface Definition
A data structure which describes the appearance and dimensions of a specific typeface. Typeface definitions contain information about serifs, character shape, slant, weight (boldness), capital height, lowercase height, and descender height. They also indicate if the typeface has such attributes such as small caps, outline, or shadow built into it already.

Typeface Family
A family of fonts that are of the same typeface but may be of a different type size, weight, or style.

Vector Map
To form an image on the screen with mathematical calculations.

Vertical Justification
The ability to justify a document from top to bottom so that text aligns at the bottom from column to column or from page to page.

WDU (Width Unit)
Horizontal distance expressed as 10,000ths of the average width of the font (FWID) with which it is associated. WDU quantities may be converted to 1200ths by multiplying by FWID (1200ths) and dividing by 10,000.

Weight
The heaviness of the characters in a typeface (e.g., light, bold).

Width Table
A file which contains font metric information. WordPerfect provides a similar file called a proportional spacing (PS) table for each font.

Word
Two bytes of information.

Word Table
If you enter a width greater than 255 or an adjust factor outside of the -128 to 127 range in a proportional spacing (PS) table, then a message is displayed asking if you want to convert the values in the PS table to a word table. If you type **y** for "yes," then each value in the PS table is converted from one byte to two bytes (a word) of information, increasing the size of the PS table. If you have typed in the wrong value, type **n** for "no" and enter the correct value.

WordPerfect Character Set
The collection of all characters which may be inserted into WordPerfect 5.0 documents. The WordPerfect character set supports about 1700 characters (including 255 characters which are reserved for user-defined characters). This master character set is subdivided into 13 subsets: ASCII, Multinational 1, Multinational 2, Math, Math Extension, Typographic Symbol, Iconic Symbol, Box Draw, Greek, Hebrew, Cyrillic, Japanese Kana, and User Defined.

WordPerfect Text
ASCII text with WordPerfect character set codes used for all non-ASCII characters. WordPerfect character codes are encoded as follows:

1st byte	0C0h
2nd byte	Character (0-255)
3rd byte	Character set (0-12)
4th byte	0C0h

Names of fonts, printers, typefaces, etc., within a printer file are in WordPerfect text format.

WPU (WordPerfect Units)
1200ths of an inch. These are units used by the WordPerfect formatter when deciding where to break lines and pages.

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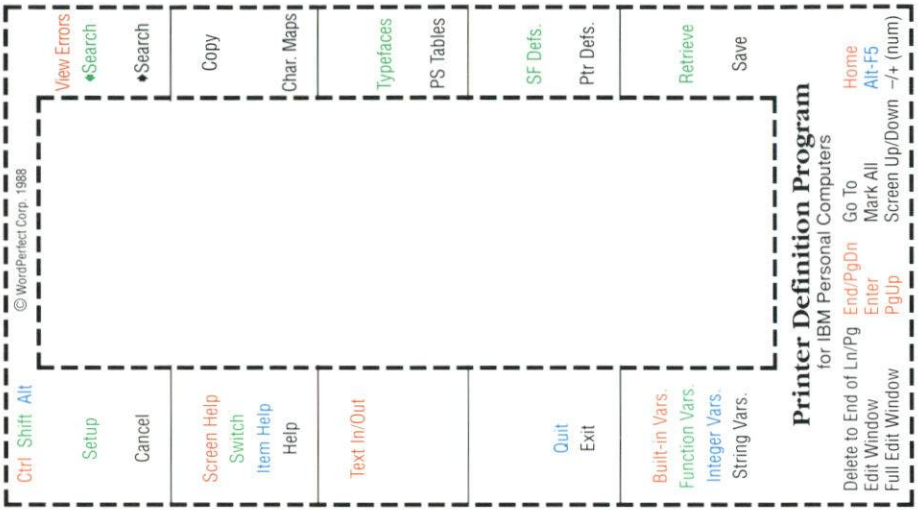
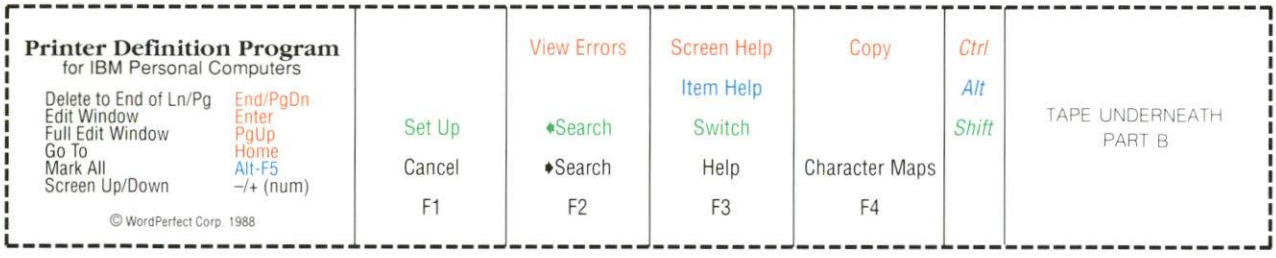
Keyboard Templates

IBM Personal Computer Standard Keyboard Template

CUT ALONG DOTTED LINES



Enhanced Keyboard Template – Part A



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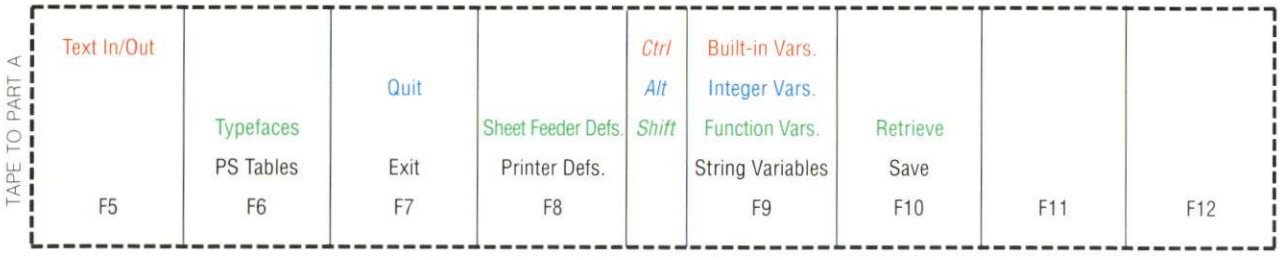

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